2000 California Boating Safety Report

State of California
The Resources Agency

Department of Boating and Waterways

Gray Davis, Governor
State of California

Mary D. Nichols
Secretary for Resources

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May 2001

STATE OF CALIFORNIA—THE RESOURCES AGENCY GRAY DAVIS, *Governor*

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Dear Boating Enthusiast:

California ranks second nationally in the number of recreational vessels. As crowded waterways lead to an increased chance of accidents, it is not surprising that California ranks second in the number of boating accidents and first in the number of boating fatalities. Because of this, it is important to supply the boating public with the best information possible to enhance safety on the water.

A primary focus of this publication is the analysis of boating accidents that occurred in 2000. This information is compiled to help us direct our efforts to reduce the number of boating accidents, injuries and fatalities on California's waterways. Continuing to provide education to anglers is a priority for the Department, as 49% of boating fatalities in 2000 occurred during fishing-related activities. An analysis of all alcohol-related fatal boating accidents reveals that 2/3 of victims were intoxicated passengers who either were responsible for or contributed to their own deaths. The Department continues to stress that the "designated operator" concept does not go far enough and recommends that no one aboard a vessel consume alcoholic beverages.

In 2000, the Department sponsored legislation (AB 2538 – Brewer) that requires persons under 12 years of age to wear life jackets in vessels 26 feet or less while underway. AB 2538 also requires persons on personal watercraft and persons being towed behind a vessel to wear lifejackets, with exceptions. The bill successfully passed the Legislature and was signed into law by Governor Davis. AB 2538's effective date was January 1, 2001.

The report also includes information about the Department's efforts to promote boating safety through law enforcement and safety education programs which involve essential, direct interaction with the boating community.

This report is also available on the Department's website, www.dbw.ca.gov. For more information about this or other accident statistics, please contact Amy Rigby by telephone at (916) 263-8190 or by e-mail: arigby@dbw.ca.gov.

Sincerely,

Raynor T. Tsuneyoshi
Director

Glossary of Terms

At Anchor

Held in place in the water by an anchor; includes "moored" to a buoy or anchored vessel, and "dragging anchor."

Cabin Motorboat

Motorboat with a cabin that can be completely closed by means of doors or hatches.

Capsizing

Overturning of a vessel. The bottom must become uppermost, except in the case of a sailboat, which may lie.

Collision with Fixed Object

The striking by a vessel of any stationary object, above or below the surface of the water.

Collision with Floating Object

Collision with any waterborne object above or below the surface of the water.

Cruising

Proceeding normally, unrestricted, with an absence of drastic rudder or engine changes.

Drifting

Under way, but proceeding without use of engines, oars, or sails; carried along only by current, or wind.

Excessive Speed

Operating at a speed that is not reasonable, prudent, or legal considering the circumstances.

Fire/Explosion (Fuel)

Accidental combustion of vessel fuel or liquids, including their vapors.

Flooding/Swamping

Filling with water, but retaining sufficient buoyancy to remain on the surface.

Grounding

The running aground of a vessel; striking or pounding on the rocks, reefs, or shoals.

Improper Lookout

No proper watch; the failure of an operator to perceive danger because no one was serving as a lookout, or the person so serving failed to do so. *(For purposes of this report, this term refers only to accidents where the ski observers were not present or failed to do their job, or sailboat accidents where a lookout was not posted or failed to perceive danger. All other accidents involving inattentive operators fall under "Operator Inattention.")*

Maneuvering

Changing course, speed, or both during which a high degree of alertness is required.

Open Motorboat

Craft of open construction specifically built for operating with a motor, including boats canopied or fitted with temporary partial shelters.

Personal Flotation Device (PFD)

Commonly known as a life jacket or life saving device, a PFD can be a jacket, vest, cushion, or ring buoy designed to serve as a lifesaving aid.

Personal Watercraft (PWC)

A small vessel that uses an internal combustion engine powering a jet pump or propeller. It is designed to carry from one to four persons, and to be operated by a person sitting, standing, or kneeling on the vessel rather than in the conventional manner of sitting or standing inside the vessel.

Rules of the Road

Statutory and regulatory rules governing the navigation of vessels.

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List of Exhibits and Charts

Exhibits

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Executive Summary

The California Department of Boating and Waterways administers many programs to provide for boating safety on the State's waterways. The 2000 California Boating Safety Report summarizes activities performed in three key safety program areas:

- Boating accident analysis
- Law enforcement
- Safety education.

This report also highlights the Department's current program enhancements and future safety initiatives designed to reduce accidents and make California's waterways safer.

Through the boating accident program, the Department provides useful accident information to boaters, law enforcement agencies, and educators. This information is communicated to the general public through the incorporation of accident analyses and relevant safety measures into the Department's safety education programs and law enforcement training programs. **Exhibit E-1** (starting on page 2) provides a summary of key boating accident statistics for 2000.

The Department provides supplemental funding to counties for law enforcement activities and promotes uniform enforcement of boating laws through its law enforcement training programs. In 2000, the financial aid program allocated $8.1 million to 35 counties and 2 cities for enforcement personnel and operating costs. In turn, the counties provided crucial boating law enforcement, as well as safety training for law enforcement officers and the public. **Exhibit E-2** (on page 5) provides a summary of law enforcement activities supported by the Department's financial aid program.

In 2000, the law enforcement-training program included seven courses on various boating safety topics, in which Department staff trained nearly 500 marine enforcement officers.

The Department's safety education programs provided nearly 2 million individuals with boating safety training and materials. On-going partnerships with educational institutions, aquatic centers, and non-profit organizations provided crucial safety information to students and the general public. Additionally, the Department sponsored a statewide radio and billboard campaign to promote life jacket usage and highlight the dangers of mixing alcohol and boating. **Exhibit E-3** (starting on page 5) provides a summary of the Department's safety education outreach programs.

New programs developed in 2000 focus on improving public outreach and expanding law enforcement training. Enhancements to existing programs reflect changing accident statistics and key safety concerns. **Exhibit E-4** (starting on page 6) presents a summary of 2000 program enhancements and initiatives.

Exhibit E-1
2000 Boating Accident Summary Statistics

Overall Boating Accident Highlights

- In 2000, a total of 906 boating accidents were reported to the Department, involving 524 injuries, 51 fatalities, and $3,038,400 in property damage.
- Operator inexperience (42%) was the most common cause of boating accidents, followed by operator inattention (32%), and excessive speed (24%). *(Many accidents had more than one cause.)*
- Accidents involving personal watercraft (PWC) increased from 264 in 1999 to 293 in 2000. The total number of PWC-related accidents, however remains well below the 391 which occurred in 1997, prior to two new laws that took effect in January 1998. The continued reduction in the number of PWC-related accidents appears to be attributable primarily to these laws.
- Open motorboats were involved in 51% of all accidents. PWC were involved in 32%.
- 38% of all vessels and 67% of PWC involved in accidents were operated by someone other than the registered owner. These findings demonstrate the need to emphasize boating education for all vessel operators as well as vessel owners.
- 73% of vessels involved in all accidents were less than 26 feet in length. 89% of vessels involved in fatal boating accidents were less than 26 feet in length.
- 38% of reported accidents resulted from collisions with other vessels.
- Accidents occurred mostly during the summer months (May through September), on weekends, during the hours between 10:00 a.m.- 6:00 p.m. The largest number of accidents (50%) occurred on lakes, followed by ocean/bay waters (28%).

Exhibit E-1 *(continued)*

- Of operators whose ages were known, those in the 31-40 age group were involved in more accidents than any other age group, followed by the 21-30 age group.
- 20% of boating accidents occurred during the summer holiday weekends of Memorial Day, Independence Day, and Labor Day.
- 16% of boating accidents occurred during water skiing activities. *In this report, the term water skiing refers to all activities involving a vessel towing a person on a towline.*

PWC Accident Statistics

- Accounting for 19% of registered vessels, PWC were involved in 32% of all accidents, 45% of all injuries, 12% of all fatalities and 14% of all property damage.
- In January 1998, two laws impacting PWC operators took effect. The first law raised the minimum age to operate a vessel over 15 horsepower from 12 to 16 years of age. Since the PWC is the vessel of choice for the vast majority of youth operators, we believe that this law has decreased the number of PWC-related accidents. A second law that prohibited activities such as wake jumping within 100 feet of another vessel, spraying down other vessels and playing "chicken" with another vessel has also had a positive impact on PWC-related accidents.
- Accidents involving PWC have decreased 25% since January 1998. Trends contributing to this result:
  - Accidents involving youths operating all types of vessels have decreased 33%.
  - PWC accidents involving radical maneuvers (such as wake jumping, donuts, and spraying other vessels) have decreased 33%.
- 67% of PWC accidents resulted from collisions with other vessels.
- In PWC collisions with another vessel, the other vessel was most often another PWC (64%).
- 31% of all PWC-related collisions involved operators who knew each other and were boating together.
- The most common cause of PWC-related accidents involved operator inexperience (61%), excessive speed (50%), and operator inattention (42%). *(Many accidents had more than one cause.)*
- PWC operators in the 11-20 age group were involved in more accidents than any other age group followed by the 21-30 age group.
- 67% of PWC involved in accidents were operated by someone other than the registered owner (45% were borrowed and 22% were rented).

Exhibit E-1 *(continued)*

Youth Accident Statistics *(Youth is under 18 years of age)*

- Since January 1998, when the minimum age to operate a vessel over 15 HP alone was raised from 12 to 16 years of age, the number accidents involving youth operators has decreased 33%, from 120 in 1997 to 80 in 2000.
- During the 2000 boating season, a total of 94 youth operators were involved in 9% of all accidents, 14% of all injuries, and 6% of all fatalities.
- 47 operators involved in accidents (50%) were under the age of 16. Six of those operators were under the age of 12.
- Of the 47 operators under 16 years of age, 74% did not have an adult on board.
- Collisions with other vessels accounted for 68% of accidents involving youth operators.
- Most of the collisions involved youth operators colliding with adult operators (74%).
- In collisions between youth and adult operators, youth operators were more likely to be exclusively at fault.
- Operator inexperience was a factor in 79% of accidents involving youth operators and was the most common cause of accidents involving them. Operator inexperience was a factor in only 42% of accidents involving operators of all ages.
- 89% of youth operators involved in accidents were operating a PWC.

Fatal Accident Statistics

- Of the 51 fatalities in 2000, 47% occurred between May and September. 33% of all fatalities occurred on weekends.
- 25 victims (49%) were involved in fishing-related activities. 88% of those victims were not wearing life jackets.
- Over half (54%) of vessels involved in fatal accidents were open motorboats, 15% were cabin motorboats, 13% were PWC and 13% were paddle craft.
- The majority (89%) of vessels involved in fatal accidents were less than 26 feet in length.
- The most common causes of fatalities were operator inattention (35%), operator inexperience (31%), and overloading/improper loading (20%). *(Many accidents had more than one cause.)*
- 78% of the victims drowned. Of that group, 80% were not wearing a life jacket.
- Capsizing (29%) and falls overboard (29%) were the most common types of fatal accidents.
- Operators in the 41-50 age group were involved in more fatal boating accidents than any other age group.
- 39% of fatalities occurred on lakes. Another 31% occurred on oceans/bays.
- 39% of boating fatalities were found to be alcohol-related, where testing could be conducted.

Exhibit E-2
Services Supported by the 2000 Financial Aid Program

Regulation Enforcement	
Verbal Warnings	53,695
Citations	8,735
Physical Arrests	631
Boater Assistance	
Persons Assisted	23,575
Vessels Assisted	16,010
Accident Investigations	783
Search and Rescue Operations	
Searches	1,315
Body Recovery Attempts	67
Boating Safety Presentations	3,835
Vessel Inspections	65,805
Organized Boating Event Supervision	309

Exhibit E-3
2000 Boating Safety Education Programs

Education Programs

AquaSMART Elementary Education Program	500,000	participating students
AquaSMART Boating High School Education Program	35,000	participating students
Home Study Course (General Public)	35,000	courses mailed
Poster Contest (Sixth Annual)	6,000	entries

Aquatic Center Grant Program

Grants to universities and non-profit organizations for scholarships for the purchase of boats, equipment, and related safety supplies	120,000	individuals trained

Public Outreach Programs

In 2000, Department representatives:

- Attended numerous events to distribute boating safety literature and answer questions for the public.
- The Department continues an outdoor media campaign focusing on areas with the greatest number of accidents. This campaign consisted of 52 stationary billboards and

Exhibit E-3 *(continued)*

10 mobile billboards which traveled to waterways throughout the summer, particularly on major holiday weekends. Special emphasis has been placed on educating anglers in this campaign.

- The Department has also increased outreach efforts to anglers by placing articles and messages in fishing publications throughout the State.
- Expanded a radio campaign targeting areas of California with the highest accident rates. Safety messages regarding PWC operation, river safety and overall boating safety were added to the messages already being aired promoting life jacket use and the dangers of mixing alcohol and boating. These messages were aired by more than 30 stations throughout the State.
- Increased outreach efforts to boaters at the water by:
  - Partnering with the California Coastal Commission's Adopt-a-Beach Program to put safety posters on refuse barrels on the docks and in picnic areas.
  - Placing all-weather safety posters at launching ramps, fuel docks, trash receptacles and park entrances.
- Distributed 1.2 million copies of boating safety literature.

Abandoned Watercraft Removal Program

- In 2000, a total of $341,685 was allocated to 9 public agencies for the removal and disposal of 75 abandoned vessels and 15 other substantial hazards to navigation.

Exhibit E-4
2000 Boating Safety Program Enhancements

Life Jacket Use

- The Department continues the Life Jacket Partner Program and the T-Shirt Program aimed at increasing the use of life jackets by children.
- The Department continues the Dairy Queen and Carl's Jr. program. Children wearing a life jacket while boating are rewarded with these coupons given by marine law enforcement officers.
- The Department continues a radio ad campaign promoting the use of life jackets. This safety message is being aired on radio stations throughout California and targets boaters in high accident areas.
- The Department continues placing billboards in areas where accidents are most prevalent and has added to this outreach effort by placing safety messages on posters

Exhibit E-4 *(continued)*

and refuse barrels at marinas. The billboards inform boaters about the importance of wearing a life jacket while boating.

- The Department produced a new 30-second television public service announcement (PSA) that stresses the importance of wearing a life jacket.
- The Department is promoting the use of life jackets at safety fairs and boat shows throughout the State, through the annual *Safe and Wise Water Ways* poster contest for children, and at National Safe Boating Week events.

Personal Watercraft

- The Department continues development of a new PWC Practical Handling Course. This course focuses on PWC operation and safe boat handling. The curriculum is designed for operators of all ages and will be available to the general public. It is designed to be incorporated into existing safety programs offered by organizations such as the U.S. Coast Guard Auxiliary, the U.S. Power Squadrons, marine law enforcement agencies, and aquatic centers. This course should be available in Summer 2001.
- The Department produced a 60-second radio message on the dangers of "horseplay" while operating a PWC which airs on radio stations throughout California.
- The Department produced a 30-second PSA on the subject of personal watercraft safety for distribution to television stations statewide this summer.

Youth Operator Safety

- The Department continues distribution of the *AquaSMART Boating* program for high school students throughout California. This course incorporates lessons on key safety concerns identified by accident statistics. Four types of boating are addressed: personal watercraft, powerboating, sailing, and paddling. The course is available to schools, aquatic centers, and youth organizations.

- As part of a larger public outreach program, the Department will continue to publicize the law requiring operators to be at least 16 years of age to operate most vessels alone.

Alcohol

- The Department continues a radio message campaign warning boaters of the dangers of drinking alcohol while boating. This safety message is airing on radio stations throughout California and targets boaters in areas with the highest accident rates.
- The Department produced a 30-second television PSA on the dangers of mixing alcohol and boating which has been distributed to television stations statewide.

Exhibit E-4 *(continued)*

- The Department continues to notify law enforcement agencies statewide about alcohol-related fatalities and encourages them to strengthen their educational and enforcement efforts in this area. The Department reinforces this message at all of its law enforcement training classes.
- The curriculum for all *AquaSMART* youth programs includes information on the dangers of alcohol and drug use especially when boating. Zero tolerance is emphasized for all persons engaged in aquatic recreation.

Other Safety Enhancements

- The Department produced a short video on general boating safety which was completed in March 2001.
- The Department produced a television PSA about fishing and boating safety. This PSA is currently being distributed to television stations statewide.
- The Department is working on a brochure promoting the importance of taking hands-on boating courses to improve safety on the water. The brochure will identify aquatic centers throughout the State where a variety of boating courses are provided. The brochure should be completed in Fall 2001.
- The Department produced a radio message promoting safe boating during whitewater activities which is airing on radio stations throughout the State. To further enhance river safety, the Department offers an assortment of river guides. The Department will continue to warn boaters about hazardous water conditions on California's rivers, especially during spring and early summer when water levels are high from snow pack run-off.
- The Department produced a "know before you go" radio ad that combines general boating safety preparedness with a message reminding boaters to be environmentally responsible.
- The Department is updating its water skiing safety video to include not only traditional water skiing activities, but also to include wakeboarding, kneeboarding, and inner tubing activities. This project should be completed in Spring 2002.
- The Department is working with the Department of Fish and Game to increase outreach efforts to anglers.
- The Law Enforcement unit continues to conduct the Accident Reconstruction Course on the water, providing staged accidents for reconstruction by students. Many law enforcement officers believe this course helps them reconstruct accidents more accurately.

Section I
Introduction

California's rivers, lakes, and coastal areas offer boating enthusiasts a wide variety of recreational opportunities, including:

- 1,356,780 surface acres of water
- 30 popular whitewater rivers with approximately 2,600 miles of waterways
- 3,427 miles of coastline and tidal shoreline.

Boating popularity grew steadily over the last decade, as reflected by the increase in the number of registered vessels. As of December 31, 2000, California had 904,843 registered vessels, the second highest in the nation.

The California Department of Boating and Waterways' mission is to provide safe and convenient public access to California waterways and to provide leadership in promoting the public's right to safe and enjoyable boating. To accomplish this, the Department administers statewide boating accident, law enforcement, and safety education programs. The *California Boating Safety Report* highlights important statistics and describes current and future program activities to enhance boating safety.

A. Boating Accident Program

The Department's boating accident program disseminates accident information to boaters, law enforcement agencies, educational organizations, and the media. The program is mandated by Part 173 of Title 33 of the U.S. Code of Federal Regulations. Annual accident information collected by the Department is forwarded to the U.S. Coast Guard in Washington D.C., and is made a part of the Coast Guard's annual publication, *Boating Statistics*.

California accident statistics are compiled under state law, Section 656 of the Harbors and Navigation Code, which requires a boater who is involved in an accident to file a written report with the Department when:

- A person dies, disappears, or is injured requiring medical attention beyond first aid; or
- Damage to a vessel or other property exceeds $500, or there is complete loss of a vessel.

Department staff review reported accidents, determine the cause(s), and identify preventative measures and specific safety-related problems. Safety education and public information program staff incorporate these safety problems and related solutions into updated course materials, promotional activities, and brochures. Law enforcement staff also communicate these safety problems during Department-sponsored training sessions for law enforcement officers.

B. Boating Law Enforcement Programs

The primary objective of the Department's law enforcement program is to assist law enforcement agencies that provide waterborne law enforcement services. These local agencies enhance boating safety through the enforcement of safety laws and regulations. To this end, the unit offers training to law enforcement officers to ensure uniform enforcement of boating laws, and provides financial support to counties for law enforcement programs and activities.

During FY1999/00, law enforcement officers from agencies participating in the financial aid program provided more than 63,000 operators with boating safety education through enforcement activities. Their verbal warnings and written citations were instrumental in helping to prevent accidents and improve boating safety.

C. Boating Safety Education Programs

The Department provides accessible boating safety education through partnerships with educational institutions and non-profit organizations. These entities, in turn, provide crucial aquatic and boating safety education to students and the general public. Both teachers and students praise the boating safety course materials developed by the Department for their exceptional content and ease of use.

Additionally, the Department's public information unit provides safety information to millions of boaters through publication distribution, public service announcements (PSAs), and press releases. The Department has more than 50 different boating safety publications covering many topics, such as boating and alcohol use and proper PWC handling. Basic boating information, including laws and regulations, rules of the road and safe operation practices, is provided to each person registering a vessel through the Department of Motor Vehicles.

Other safety messages are disseminated through the use of both radio ads and a billboard campaign. These methods allow the Department to reach boaters who may not otherwise come into contact with other forms of boating safety information found at safety fairs, boat shows, or in pamphlets.

In 2000, the Department received several awards from the State Information Officers Council for boating safety materials developed by staff.

Section II

Boating Accident Program

This section summarizes 2000 boating accident statistics. Law enforcement agencies, the United States Coast Guard, educational institutions, and California boaters use these statistics to help improve boating safety.

A. Limitations of the Analysis

Reportable Accidents

The statistics in this report reflect every **reported** boating accident in California in 2000. Although the Department believes that all accidents involving fatalities were reported, many non-fatal accidents are never reported to the Department or law enforcement agencies due to noncompliance with, or ignorance of, the reporting law. The U.S. Coast Guard estimates that only about 10% of accidents are actually reported to state programs nationwide, while the Red Cross estimates that only 2.5% are reported.

An increase in the number of reported accidents from year to year might not necessarily reflect an increase in the actual number of accidents, but rather might result from improved reporting efforts or follow-up research from other sources (e.g., newsclippings). To improve the accuracy of accident statistics, the Department has increased its efforts to obtain all accident reports by working closely with law enforcement agencies.

Accident Statistics

A total of 906 accidents were reported to the Department in 2000. Some statistics in this report are measured as a percentage of these total accidents. Often, there is more than one cause of an accident, more than one operator involved in an accident, or more than one vessel involved. Therefore, the number of vessels, like the number of operators involved in accidents, usually exceeds

the number of accidents. A total of 1,288 operators were involved in boating accidents in 2000. Many statistics presented in this report are measured as a percentage of the number of operators involved or the number of causes-rather than the 906 accidents-in order to provide more accurate comparisons.

Alcohol Use

Analysis of alcohol-related accidents can be difficult for the following reasons:

- **Delayed Accident Reporting**- Often there is significant delay between the time of the accident and the reporting of the accident to law enforcement agencies. Delays can happen for a variety of reasons including emergency care needs and the desire to avoid legal consequences. (Operators/ passengers are reluctant to report themselves as being under the influence of alcohol or drugs.) Unfortunately, these delays can result in the loss of accurate data due to alcohol burn-off.
- **Delayed Body Recovery**- Sometimes, the bodies of boating accident victims are not recovered immediately. A delay of more than two days in recovering a body can result in significantly altered blood alcohol levels due to the process of decomposition, a by-product of which is blood alcohol.

39% of boating fatalities in 2000 could not be tested for alcohol for the above reasons.

B. 1999 Accident Summary

Findings

The 906 accidents reported to the Department during 2000 involved 524 injuries, 51 fatalities, and $3 million in property damage. The total number of reported accidents remained virtually unchanged (907) while the number of injuries, fatalities and the total property damage were higher than 1999 totals, (491, 42, and $2.8 million, respectively).

Exhibit II-1 (on page 13) presents boating accident statistics in California from 1980 through 2000.

Exhibit II-2 (starting on page 14) presents 2000 boating accident statistics by county.

Type and Cause of Accidents

Exhibit II-3 (on page 16) presents types and causes of accidents by vessel type. Overall, the most common type of accident involved collision with another vessel (38%). Open motorboats and personal watercraft were the most common types of vessels involved in accidents and were involved in 51% and 32% of accidents respectively. The most common type of accident involving open motorboats was collision with another vessel (28%), followed by accidents involving skier mishaps (23%). Most accidents involving PWC were collisions with other vessels (67%), followed by falls overboard (17%).

The most frequently stated causes of accidents overall were operator inexperience (42%), operator inattention (32%), and excessive speed (24%). (A boating accident can have more than one attributable cause.)

Exhibit II-1
1980-2000 Boating Accidents in California*

Year	Number of Accidents	Number of Injuries	Number of Fatalities	Amount of Property Damage
1980	657	270	112	$2,039,800
1981	728	319	87	$3,655,630
1982	696	323	103	$2,497,000
1983	648	333	95	$3,713,100
1984	791	341	93	$2,491,700
1985	869	403	76	$4,246,400
1986	741	319	68	$2,645,500
1987	905	325	54	$3,381,600
1988	745	333	51	$2,396,100
1989	632	371	43	$3,669,800
1990	761	416	50	$3,131,200
1991	750	421	58	$2,653,800
1992	689	447	59	$4,360,100
1993	743	434	67	$2,052,800
1994	709	386	40	$1,740,300
1995	833	490	52	$2,536,500
1996	850	537	56	$2,241,700
1997	925	526	43	$3,266,800
1998	772	413	58	$2,299,600
1999	907	491	42	$2,864,000
2000	906	524	51	$3,038,400

* *An accident is considered reportable if: a person dies, disappears, or is injured requiring medical attention beyond first aid; damage to a vessel or other property damage exceeds $500; or there is complete loss of a vessel. Not all accidents are reported to the Department, due to either nonobservance or ignorance of the reporting law.*

Exhibit II-2
2000 Boating Accidents by County*

County	Number of Accidents	Number of Injuries	Number of Fatalities	Amount of Property Damage
Alameda	11	3	2	$11,300
Amador	5	3	1	$9,600
Butte	18	12	0	$25,200
Calaveras	35	25	2	$97,800
Colusa	4	1	0	$3,800
Contra Costa	31	14	1	$631,450
Del Norte	3	0	0	$317,800
El Dorado	16	12	0	$26,800
Fresno	17	6	1	$53,550
Glenn	1	1	0	$2,600
Humboldt	3	3	1	$2,300
Imperial	11	6	0	$29,350
Kern	1	0	0	$1,600
Lake	16	15	1	$12,900
Lassen	1	0	1	$0
Los Angeles	99	48	2	$198,300
Madera	9	8	0	$8,100
Marin	11	0	2	$69,200
Mariposa	3	2	0	$2,000
Mendocino	1	0	1	$550
Merced	1	2	0	$0
Modoc	1	0	3	$0
Mono	1	2	0	$0
Monterey	9	2	1	$24,350
Napa	29	21	1	$74,100
Nevada	4	2	0	$7,700
Orange**	46	8	0	$128,100
Placer	26	13	0	$54,800

* *An accident is considered reportable if: a person dies, disappears, or is injured requiring medical attention beyond first aid; damage to a vessel or other property damage exceeds $500; or there is complete loss of a vessel. Not all accidents are reported to the Department, due to either nonobservance or ignorance of the reporting law.*

** *The increase in boating accidents in Orange County when compared with accident totals appearing in reports prior to 1999 is not due to an increase in accidents, but rather an increase in the reporting of accidents to the Department.*

Exhibit II-2 *(continued)*
1980-2000 Boating Accidents by County*

County	Number of Accidents	Number of Injuries	Number of Fatalities	Amount of Property Damage
Plumas	4	3	1	$0
Riverside	27	26	2	$35,900
Sacramento	10	4	2	$26,100
San Bernardino	73	53	5	$202,900
San Diego	81	48	1	$189,550
San Francisco	7	2	1	$58,100
San Joaquin	63	33	3	$151,600
San Luis Obispo	17	7	2	$32,450
San Mateo	4	3	0	$2,000
Santa Barbara	6	1	0	$16,100
Santa Clara	14	15	1	$45,050
Santa Cruz	6	1	2	$9,750
Shasta	51	37	0	$94,450
Sierra	1	0	1	$0
Siskiyou	2	1	0	$550
Solano	15	11	3	$35,300
Sonoma	6	1	0	$23,000
Stanislaus	12	8	0	$48,800
Sutter	4	4	0	$14,000
Tehama	4	0	0	$10,500
Trinity	15	13	2	$0
Tulare	9	5	0	$27,100
Tuolumne	33	23	2	$115,450
Ventura	15	5	3	$54,600
Yolo	5	5	0	$26,800
Yuba	9	6	0	$25,100
TOTAL	**906**	**524**	**51**	**$3,038,400**

* *An accident is considered reportable if: a person dies, disappears, or is injured requiring medical attention beyond first aid; damage to a vessel or other property damage exceeds $500; or there is complete loss of a vessel. Not all accidents are reported to the Department, due to either nonobservance or ignorance of the reporting law.*

** *The increase in boating accidents in Orange County when compared with accident totals appearing in reports prior to 1999 is not due to an increase in accidents, but rather an increase in the reporting of accidents to the Department.*

Exhibit II-3
Types and Causes of Accidents by Vessel Type

	Open Motorboats		Personal Watercraft		Other Vessels		All Vessels	
Types of Accidents	Collision with Other Vessel	28%	Collision with Other Vessel	67%	Collision with Other Vessel	43%	**Collision with Other Vessel**	**38%**
	Skier Mishap	23%	Falls Overboard	17%	Grounding	12%	**Skier Mishap**	**12%**
	Flooding/ Swamping	14%	Grounding	5%	Flooding/ Swamping	11%	**Grounding** **Flood/Swamp**	**10%** **10%**
Causes of Accidents	Operator Inattention	33%	Operator Inexperience	61%	Operator Inexperience	39%	**Operator Inexperience**	**42%**
	Operator Inexperience	27%	Excessive Speed	50%	Operator Inattention	29%	**Operator Inattention**	**32%**
	Excessive Speed	18%	Operator Inattention	42%	Hazardous Weather/Water	16%	**Excessive Speed**	**24%**

The leading causes of accidents involving open motorboats were operator inattention and operator inexperience. The leading causes of accidents involving PWC were operator inexperience and excessive speed. Overall, these causes were consistent with previous years.

Time and Location

Accidents occurred mostly during the summer months (May through September), on weekends, between 2:00 p.m. and 4:00 p.m.

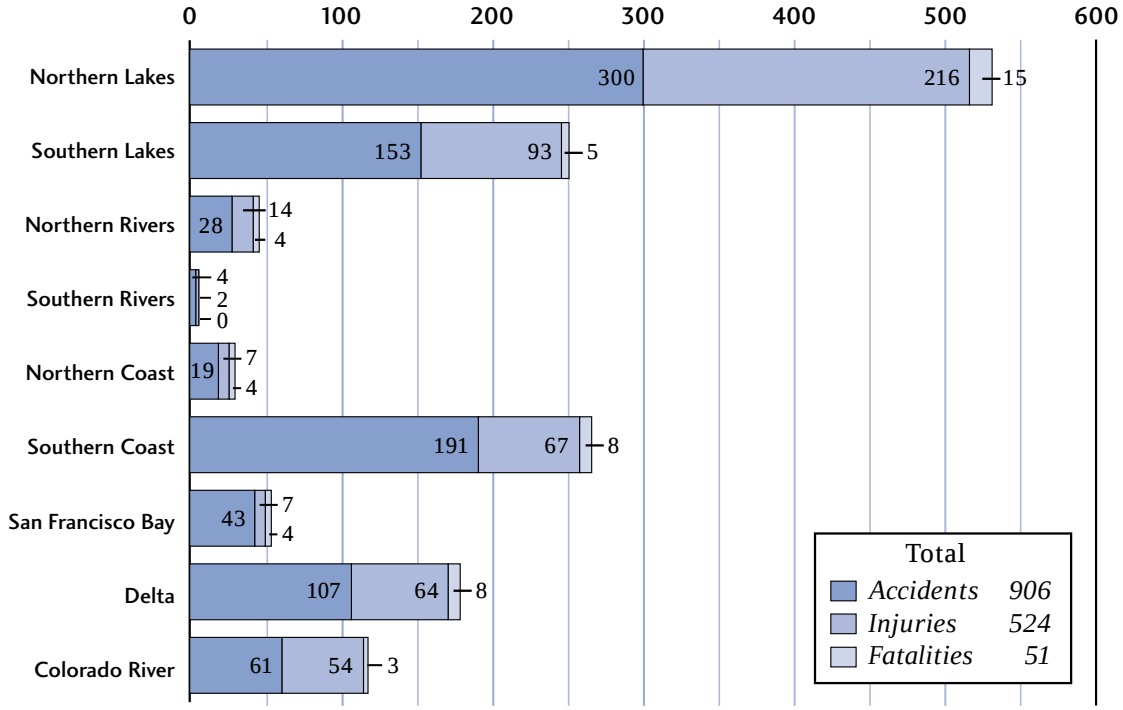
Of the 906 boating accidents, 178 (20%) occurred during the three holiday periods of Memorial Day, Independence Day, and Labor Day.

Exhibit II-4 (on page 17) presents the accidents, injuries, and fatalities by location. Overall, most accidents and injuries occurred on lakes, 50% and 59% respectively, and more occurred on northern lakes.

Vessel Type and Length

In 2000, open motorboats accounted for approximately 53% of all vessels registered in California, and PWC accounted for 19%. Open motorboats were involved in 51% of all accidents and PWC were involved in 32% of all accidents. This indicates that PWC were involved in a disproportionately high number of accidents. However, the number

Exhibit II-4
2000 Boating Accidents by Location*



* *An accident is considered reportable if: a person dies, disappears, or is injured requiring medical attention beyond first aid; damage to a vessel or other property damage exceeds $500; or there is complete loss of a vessel. Not all accidents are reported to the Department, due to either nonobservance or ignorance of the reporting law.*

of PWC involved in accidents has decreased substantially in the last three years and is down 25% since 1997, when accidents involving these vessels were at an all-time high of 391. Most vessels (73%) involved in accidents were less than 26 feet long.

Exhibit II-5 (on page 18) presents registration and accident statistics for open motorboats, PWC, and other vessels during 2000.

Operator Age

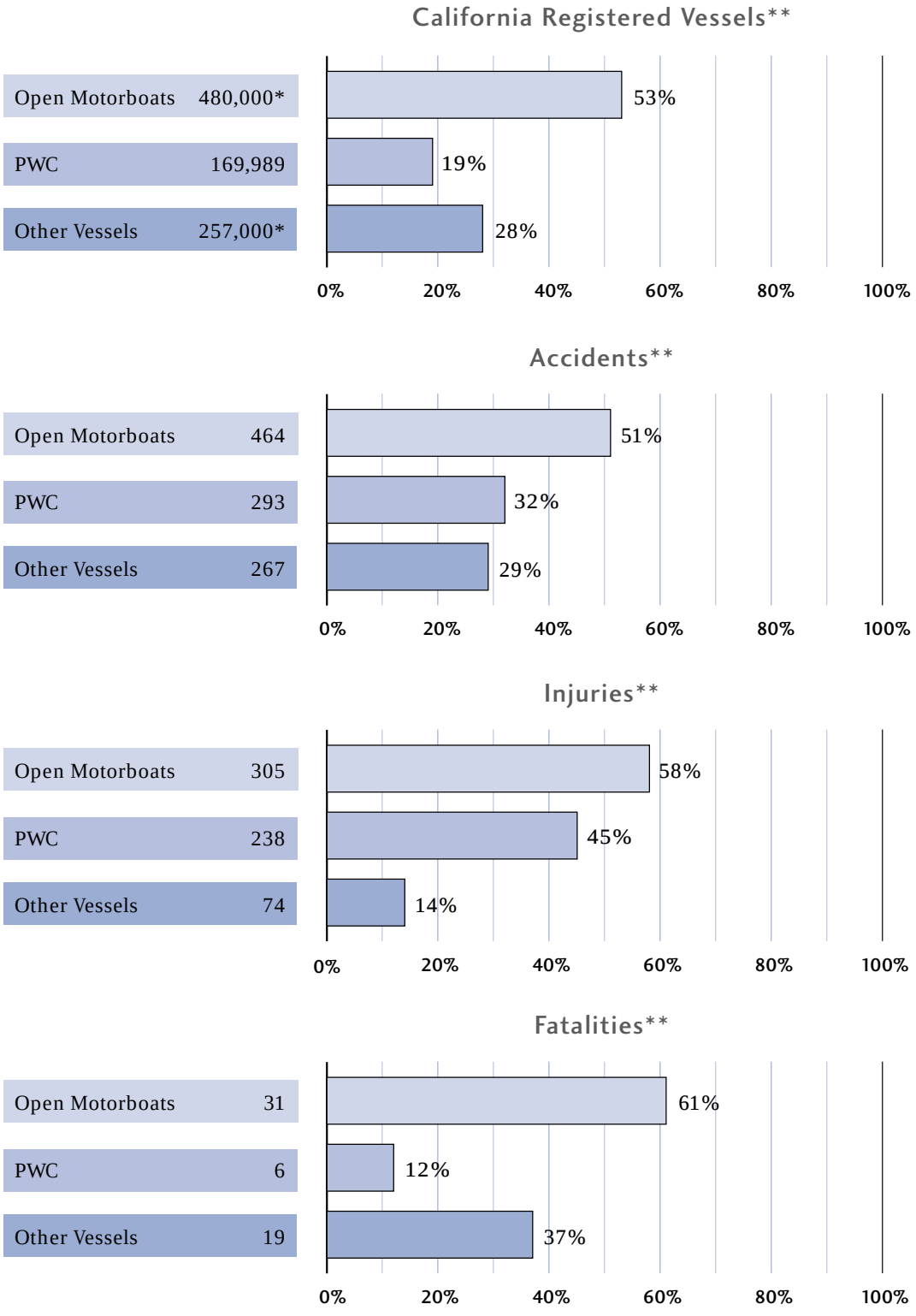
Overall, operators in the 31-40 age group were involved in accidents more often than those in any other age group. The 31-40 age group was involved most often in open motorboat accidents, followed by the 21-30 age group. Most PWC accidents involved operators in the 11-20 age group, followed by the 21-30 age group.

Operator Owner Status

45% of all vessels involved in accidents were operated by the registered owner. 38% of vessels were operated by someone other than the registered owner (27% were borrowed and 11% were rented).

Exhibit II-5

2000 Registration and Accident Statistics for Open Motorboats, PWC, and Other Vessels



* *These figures are estimates, based on the Department of Motor Vehicles registration categories.*

** *The sum of the percentages does not equal 100 percent because some accidents, injuries, and fatalities involve multiple types of vessels.*

C. Accidents Involving Personal Watercraft

Background

A personal watercraft is a small vessel that uses an internal combustion engine powering a jet pump or propeller. It is designed to carry from one to four persons, and to be operated by a person sitting, standing, or kneeling on the vessel rather than in the conventional manner of sitting or standing inside the vessel.

The use of a PWC is subject to all state, local, and federal regulations governing the operation of all powerboats of similar size.

As of December 31, 2000, there were 169,989 PWC registered in California, comprising 19% of registered vessels. The table below shows the total number of PWC registered in California from 1993 through 2000.

Findings

A total of 293 PWC-related accidents were reported in 2000, resulting in 238 injuries, 6 fatalities, and $436,650 in property damage. The total number of reported accidents and injuries were higher than 1999 levels (229 and 161 respectively) while the number of reported fatalities remained the same. The amount of property damage decreased from $384,050.

Exhibit II-6 (on page 20) presents an eight-year summary for PWC accidents, injuries, fatalities, and property damage.

Exhibit II-7 (on page 21) presents 2000 reported PWC-related accidents by county.

Accounting for 19% of registered vessels, PWC were involved in 12% of all fatalities and 14% of all property damage, but were involved in 32% of all accidents and 45% of all injuries.

Although accidents involving personal watercraft increased from 264 in 1999 to 293 in 2000, accidents involving them have decreased significantly (25%) since the 1997 boating season, during which there were 391 PWC-related accidents.

This decrease appears to be attributable mainly to two new laws affecting PWC that took effect in January 1998. The first law prohibited activities such as wake jumping within 100 feet of another vessel, spraying down other vessels, and playing "chicken." These activities now constitute endangerment of life, limb, and property. The second law raised the minimum age to operate a vessel of over 15 HP alone from 12

Personal Watercraft (PWC) Registration

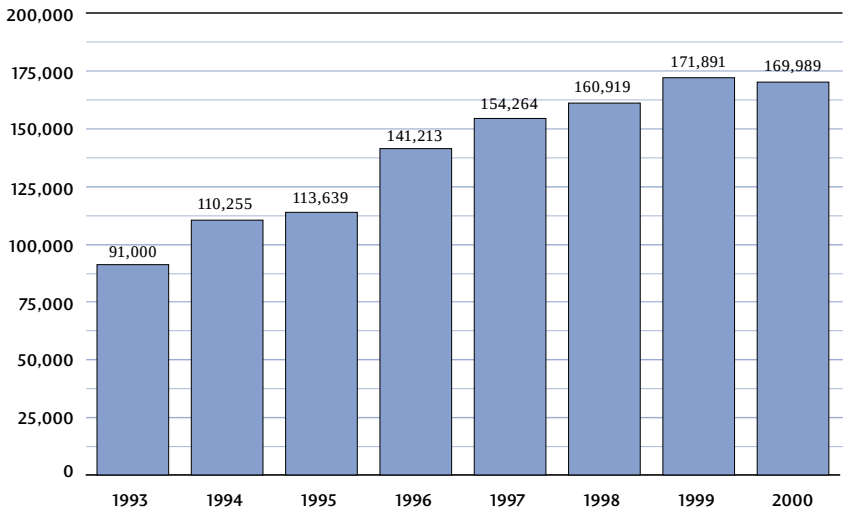


Exhibit II-6
1993-2000 PWC Accidents, Injuries, Fatalities and Property Damage*

Year	Number of Accidents	Number of Injuries	Number of Fatalities	Amount of Property Damage
1993	248	178	5	$306,900
1994	257	178	7	$294,800
1995	353	226	6	$579,550
1996	385	298	8	$508,300
1997	391	276	8	$709,450
1998	229	161	9	$384,050
1999	264	215	6	$447,550
2000	293	238	6	$436,650

* *An accident is considered reportable if: a person dies, disappears, or is injured requiring medical attention beyond first aid; damage to a vessel or other property damage exceeds $500; or there is complete loss of a vessel. Not all accidents are reported to the Department, due to either nonobservance or ignorance of the reporting law.*

to 16 years of age. Since the vessel of choice of operators between 12 and 16 is the PWC, restricting this group's ability to operate vessels has resulted in a decrease in PWC-related accidents. This reduction in accidents is also discussed in *Accidents Involving Youths*, on page 26.

PWC accidents involving radical maneuvers such as wake jumping, donuts, and spraying other vessels fell from 88 in 1997 to 59 in 2000, a decrease of 33%.

Aaccidents involving youth operators fell from 120 in 1997 to 80 in 2000, a decrease of 33%.

Of the 6 PWC-related fatalities, collisions (33%) and falls overboard (33%) were the most common types of accidents.

Type and Cause of Accidents

Although PWC-related accidents have decreased considerably, types and causes of accidents involving PWC have remained consistent with findings from previous years.

Most reported PWC accidents involved collisions with other vessels (67%). 17% of accidents involved falls overboard, 5% involved vessels grounding and 5% involved persons being struck by boats/ propellers. Among collisions between two vessels, the second vessel was most often another PWC (64%).

The most common causes of all PWC accidents were operator inexperience (61%), excessive speed (50%), and operator inattention (42%). (Some accidents have more than one attributable cause.) All of these causes are operator-controllable factors.

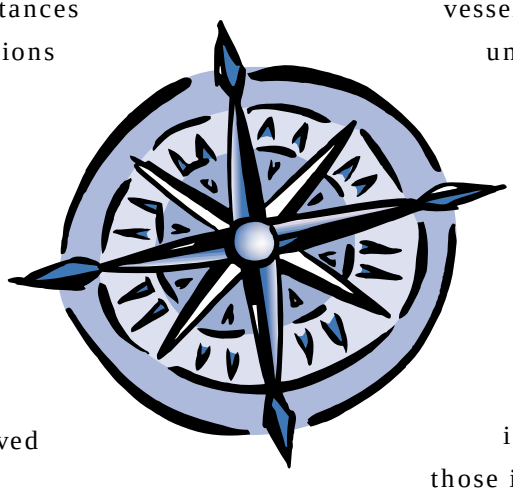
Exhibit II-7
2000 PWC-Related Accidents by County*

County	Number of Accidents	Number of Injuries	Number of Fatalities	Amount of Property Damage
Amador	2	1	1	$0
Butte	6	7	0	$7,500
Calaveras	15	9	0	$30,450
Colusa	1	0	0	$2,000
Contra Costa	4	3	1	$1,350
El Dorado	6	4	0	$15,900
Fresno	8	4	0	$23,000
Kern	9	5	0	$28,750
Kings	1	0	0	$1,600
Lake	10	10	0	$8,400
Los Angeles	31	23	0	$34,850
Madera	5	6	0	$5,500
Mariposa	1	1	0	$0
Merced	1	2	0	$0
Monterey	1	1	0	$600
Napa	13	8	0	$22,050
Nevada	1	2	0	$0
Orange	5	1	0	$4,950
Placer	11	8	0	$24,900
Plumas	1	1	0	$0
Riverside	20	16	1	$23,900
Sacramento	2	2	0	$1,550
San Bernardino	33	30	3	$48,000
San Diego	33	34	0	$21,450
San Joaquin	12	9	0	$14,900
San Luis Obispo	6	6	0	$3,000
Santa Barbara	1	0	0	$3,000
Santa Clara	4	6	0	$4,500
Shasta	11	11	0	$24,600
Solano	3	1	0	$3,400
Sonoma	1	0	0	$5,000
Stanislaus	9	6	0	$12,800
Trinity	3	3	0	$0
Tulare	4	4	0	$13,600
Tuolumne	12	7	0	$30,450
Ventura	1	1	0	$2,500
Yolo	2	4	0	$6,800
Yuba	4	2	0	$5,400
TOTAL	**293**	**238**	**6**	**$436,650**

* *An accident is considered reportable if: a person dies, disappears, or is injured requiring medical attention beyond first aid; damage to a vessel or other property damage exceeds $500; or there is complete loss of a vessel. Not all accidents are reported to the Department, due to either nonobservance or ignorance of the reporting law.*

** *The increase in boating accidents in Orange County when compared with accident totals appearing in reports prior to 1999 is not due to an increase in accidents, but rather an increase in the reporting of accidents to the Department.*

Of the 196 collisions between two PWC, 60 (31%) involved operators who knew each other and were riding together. Of that group, unsafe following distances contributed to 35% of collisions and 23% involved radical maneuvers (spraying other vessels, wake jumping, donuts, or playing "chicken").



Operator Age

PWC operators in the 11-20 age group were involved in more accidents than any other age group followed by the 21-30 age group.

Operator Owner Status

67% of PWC involved in accidents were operated by someone other than the registered owner (45% were borrowed and 22% were rented).

Boater Use Study

Several years ago, the Department noted the disproportionately high number of PWC-related accidents when compared to their registered numbers. For example, in 1994, PWC constituted 13% of the vessel population, but were involved in 36% of the accidents. However, if PWC spent more time underway than conventional boats, would the accident rate still be disproportionate? To answer this concern, the Department funded a study that was conducted by California State University Sacramento to survey boat owners to determine the amount of time boats were underway.

The study, conducted in 1995 and 1996, found that, for every day on the water, PWC spent 5.2 hours underway, while conventional vessels only spent 3.6 hours underway. However, when controlled for hours underway (that is, if conventional boats spent the same amount of time on the water as PWC), the study found that the number of accidents and injury-related accidents involving PWC still exceeded those involving conventional boats.

The number of PWC-related accidents has decreased substantially in the last three years. Therefore, to see if the above finding was still true, the 2000 accident data was used in combination with the use data from the study to generate the following statistics:

- Despite the decrease in PWC-related accidents, the number of accidents and injury accidents involving PWC continues to exceed those involving conventional vessels when controlled for hours underway.
- When controlled for hours underway, there would have been 1 accident for every 580 PWC operating on California waterways, compared to 1 accident for every 739 conventional vessels.

Representative Accidents

- Two PWC operators had been riding together. One operator fell overboard and was attempting to reboard his vessel. The second operator came over to assist him and did so at too great a speed, reduced the throttle, and then lost steering capability. He struck Operator 1 in the head and pinned his neck between the two vessels, causing further injuries.
- A PWC operator attempted to jump a wake and landed hard on the water, causing him to fall forward and lacerate his face on the steering console, and his passenger to strike her face on the back of the operator's head, knocking out her front teeth.
- The operator of a PWC was maneuvering in donuts at a high rate of speed which caused her passenger to lose her grip, fall overboard and sustain multiple contusions and injuries to her back.
- Two PWC operators were traveling together, one behind the other. The operator in the lead made a sudden U-turn, placing her in the path of vessel 2. Operator 2 was traveling less than 10 feet behind vessel 1 and could not avoid a collision. Operator 1 was rendered unconscious and also sustained a fractured pelvis.
- A PWC operator was maneuvering in the vicinity of several swimmers on swimboards attempting to make wakes for them to float over. She changed course to avoid a dog swimming in the water and in doing so, let off the throttle, and struck one of the swimmers in the head. He sustained a severe laceration requiring stitches.

Additional Safety Concerns

- Many PWC operators do not realize that when they let off the throttle, they lose steering capability. Numerous accidents have resulted from this lack of knowledge.
- PWC sometimes present a danger to their riders because of the craft's lack of visibility when it capsizes. Riders who are attempting to remount their PWC are often not visible to other watercraft, and are liable to be struck by other vessels.
- Rarely, lanyards present difficulties in accidents. In one case, the operator fell overboard and was injured, rendering him unable to swim back to the craft. Since the lanyard was on his wrist, the passenger was unable to maneuver the craft to retrieve him. In other cases, lanyards became detatched and could not be reattached quickly enough to avoid grounding or colliding with another vessel. These situations are rare, but noteworthy.

D. Accidents Involving Water Skiing

In this report, the term "water skiing" refers to all activities involving a vessel towing a person on a towline.

Findings

In 2000, a total of 146 accidents involving water skiing activities were reported to the Department, resulting in 145 injuries and 3 fatalities. The accidents accounted for 16% of all accidents, 28% of injuries, and 6% of fatalities. Water skiing accidents increased 36% compared with 1999 totals.

In recent years, the sport of water skiing has evolved beyond traditional water skiing and now encompasses the towing of inner tubes, wake boards, kneeboards, and air chairs. In 2000, accidents involving wakeboards exceeded traditional water skiing accidents for the first time. Wakeboarding activities were involved in 36% of water skiing accidents followed by traditional water skiing (34%), inner tubing (29%).

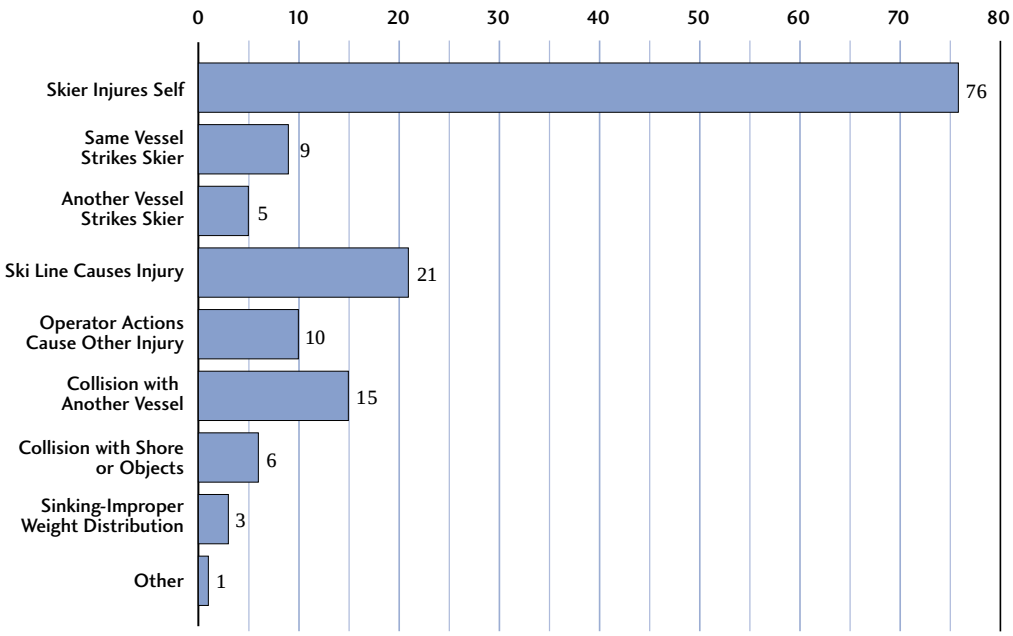
Type and Cause of Accidents

Exhibit II-8 (below) provides a breakdown of the 2000 reported water skiing activities by situation.

Water skiing accidents in which the skier was responsible for the accident accounted for the largest percentage of accidents (52%). These accidents most often involved inexperienced skiers who were injured while attempting to stand up or who attempted manuevers beyond their experience level.

Exhibit II-8
2000 Water Skiing Accidents

Total Water Skiing Accidents = 146



The remaining 48% of accidents involved operators engaging in a variety of unsafe behaviors both by operators towing skiers and also by other vessels operating in the vicinity of vessels towing skiers. The most common situations involved:

- Vessels not keeping appropriate distances from drifting vessels involved in assisting fallen skiers, thereby running over ski lines.
- Operators commencing operation of vessels while ski lines are still in the water, causing the lines to be entangled in the propellers.
- Operators coming too close to the shoreline while towing tubes, not realizing that the tubers cannot maneuver the tubes and causing them to strike the shoreline.
- Operators towing tubes in donuts to provide the tubers with more exciting rides, but instead, running over the ski lines and pulling the tubes into the propellers.
- Operators failing to notice that other vessels are towing skiers, causing collisions with skiers.
- Operators looking over their shoulders, watching skiers instead of relying on the observers, resulting in collisions with other vessels or the shoreline.

Representative Accidents

- The operator was towing 2 persons on a tube. As the tube traveled over a wake, the tubers flew into the air and struck heads, causing one to sustain a concussion.
- A vessel was stopped, loading a tuber into the vessel. The towline was extended and the ski flag was raised. A second vessel came into the area, also towing a skier, and crossed over the drifting vessel's extended towline, causing the line to become tangled in the vessel's propeller and pull taut. The tuber who was climbing into the vessel became entangled in the line and sustained lacerations.
- An operator towing a skier maneuvered the vessel in such a manner as to cause the towline to cross over another vessel, injuring two persons aboard that vessel as they came in contact with the line.
- An operator towed a skier through a line of buoys to allow the skier to use them as a slalom course, failing to realize that the buoys marked shallow water the vessel became grounded.
- A wakeboarder was attempting to do a flip, when one foot came out of the binding, causing his other leg to twist, resulting in a broken femur.

Time and Location

95% of water skiing accidents occured between May 1 and September 30. 75% of water skiing related accidents occurred in Northern California and 25% in Southern California. The most popular bodies of water were lakes (77%) followed by the Sacramento/San Joaquin Delta 11%.

Vessel Type and Length

96% of vessels involved in water skiing accidents were open motorboats. 82% were between 16 and 25 feet in length.

E. Accidents Involving Youths

Background

Throughout this report, "youths" refers to persons under 18 years of age.

From 1987 through 1997, California law required a person to be at least 12 years of age to operate a craft of more than 10 HP. If an operator was under 12, a person 18 years of age or older had to be on board the vessel.

In 1998, the law changed; it now requires the operator of a craft of more than 15 HP to be at least 16 years of age. Persons 12-15 may operate if a person of at least 18 years of age is attentively supervising aboard the vessel.

Note: Exceptions to this law include the operation of a sailboat that does not exceed 30 feet in length or a dinghy used directly between a moored boat and the shore, or between two moored boats.

Findings

During the 2000 boating season, youth operators were involved in 9% of all accidents, 14% of injuries, and 6% of fatalities. **Exhibit II-9** (below) presents an eight-year summary for youth operator accident statistics.

The number of accidents involving youths had remained consistent for three years prior to the 1998 boating season. However, since the previously mentioned operator age limit increase took effect in January 1998, there has been a substantial decrease in the number of accidents involving operators under 16 years of age. Accidents involving all youth operators decreased 33%, from 120 in 1997 to 80 in 2000.

Of the 94 youth operators involved in accidents, 47 (50%) were under the age of 16, and 6 were under the age of 12. Of the operators younger than 16 years of age,

Exhibit II-9
1993-2000 Youth Operator Accidents

Year	Total Number of Operators	Total Number of Accidents	Total Number of Injuries	Total Number of Fatalities
1993	77	67	51	7
1994	99	86	63	3
1995	135	110	80	1
1996	136	117	95	3
1997	140	120	87	2
1998	81	70	51	6
1999	73	63	56	2
2000	94	80	72	3

74% were operating illegally by either not having an adult on board, or, when the operator was younger than 12, operating the vessel under any circumstance.

Fatal accidents involving youth operators increased in 2000. Three youth operators were involved in fatal accidents, resulting in 3 fatalities. All three operators were 16 years old.

Type and Cause of Accidents

Collisions (68%) were the primary type of accident involving youth operators followed by grounding (10%) and falls overboard (8%).

The most common cause of accidents involving youth operators was operator inexperience (79%). Operator inexperience was a factor in only 42% of accidents involving operators of all ages. Excessive speed was the second most common cause, followed by operator inattention.

Vessel Type

The vast majority (89%) of youth operators involved in accidents were operating PWC.

Fault Assessment

Youth operators were involved in 54 collisions with other vessels. Most of these collisions (74%) involved youth operators colliding with adult operators. Youth operators were exclusively at fault in 60% of these collisions, compared to 18% for adult operators. An additional 15% of accidents between youth and adult operators involved shared fault and in 7% of accidents, information regarding fault was unknown.

Representative Accidents

- A 14-year-old operator of a PWC was repeatedly attempting to spray a relative on a second PWC. In attempting to do so, he crossed the second vessel's bow, resulting in the broadsiding of his vessel. He sustained severe internal injuries and had to be revived by CPR.
- Two youth operators (16 and 17 years of age) were traveling together on PWC, one behind the other. The operator of the lead vessel made an unexpected sharp turn, causing the passenger to fall overboard. The second operator had been following at an unsafe distance and was unable to avoid striking the passenger in the water. The victim sustained a broken nose and multiple lacerations to his face.
- The owner of an open motorboat illegally allowed a 9-year-old to operate the vessel and tow two people on kneeboards. The vessel was plowing through the water with the bow raised, restricting the operator's vision. Although there was an observer posted for the skiers, no one was seated in the bow to help spot hazards and the vessel broadsided a drifting vessel. Luckily, no one was injured in this accident.
- A 15-year-old operator of a PWC was very inexperienced and operating illegally without an adult on board. He misjudged the distance needed to make a turn near shore and grounded the vessel on the levee. He sustained lacerations to his scalp and broken fingers.

Additional Safety Concern

Very young children riding on PWC can present serious safety problems. While riding in front of an operator, a child has easy access to the vessel controls and can easily manipulate them. Such situations have resulted in accidents. Seating a young child behind a PWC operator is unsafe as well, because he or she can easily fall overboard.

F. Fatal Boating Accidents

Findings

In 2000, 51 fatalities occurred on California waterways. This represents 5.6 fatalities per 100,000 registered vessels. The number of fatalities increased from 42 in 1999 (4.4 per 100,000 registered vessels).

Type and Cause of Accidents

The most common type of fatal accident involved vessels capsizing (29%), and falls overboard (29%). Operator inattention (35%), operator inexperience (31%) and overloading/improper loading of vessels (20%) were the primary causes of fatalities. 78% of the victims drowned. Of that group, 80% were not wearing a life jacket.

Time and Location

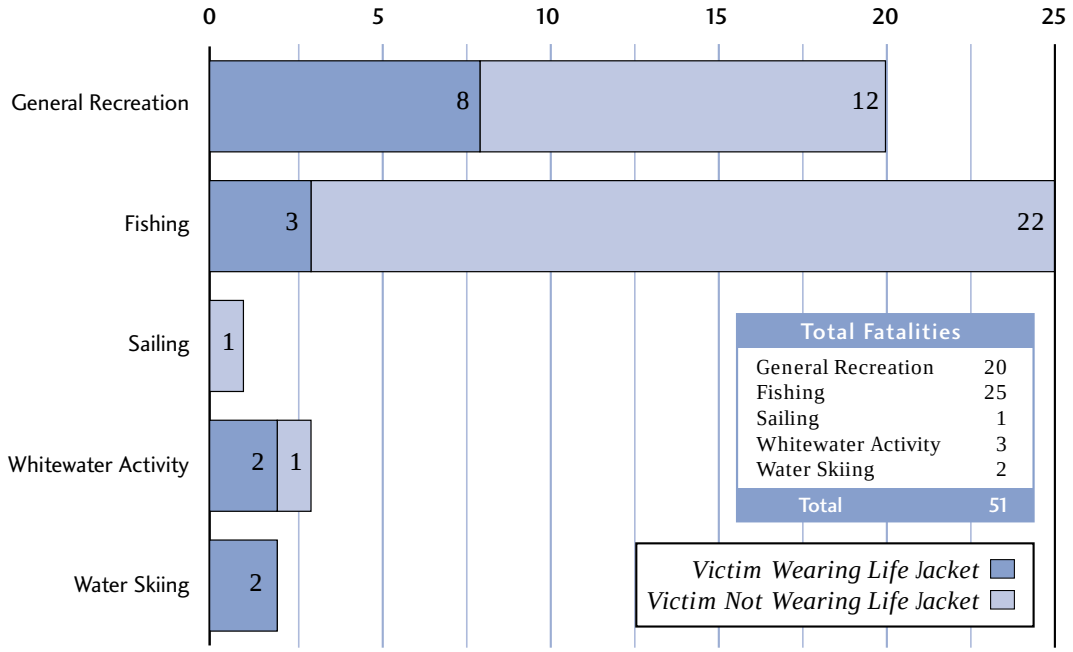
The largest number of fatalities occurred during April followed by June and July. Although California's temperate climate allows for year-round boating throughout much of the State, most boating activity, and therefore, most accidents, occur between May 1 and September 30. In 2000, however, a large number of fatalities (53%) occurred in the "off-season." Several accidents involving multiple fatalities occurred during this period. Additionally, 59% of these "off-season" fatalities occurred during fishing-related activities. Sixteen fatalities involving fishing occurred during this period compared with 6 in 1999. Fishing related fatalities are discussed in more detail later in this section.

Fatalities were only slightly more likely to occur during weekends. 39% of fatalities occurred on lakes, 31% occurred on oceans/bays, 16% occurred in the Sacramento/San Joaquin Delta region, 6% on the Colorado River, and 8% on other rivers throughout the State.

Vessel Type and Length

54% of vessels involved in fatal accidents were open motorboats, 15% were cabin motorboats, 13% were paddle craft and 13% were PWC. Even though PWC were involved in 32% of all accidents, they were not

Exhibit II-10
2000 Fatal Boating Accidents by Type and Life Jacket Usage



involved in nearly as many fatalities. PWC operators are more likely to wear life jackets, which may explain the lower fatality rate. Nearly all vessels involved in fatal accidents were less than 26 feet in length (89%).

Victim Activity

Exhibit II-10 (above) presents boating fatalities by type of activity and life jacket usage.

Nearly half (49%) of the victims involved in fatal boating accidents were on fishing trips at the time of the accident. Of these victims, 88% were not wearing a life jacket and drowned.

Fishing-related fatalities nearly doubled compared with the totals from the 1999 boating season.

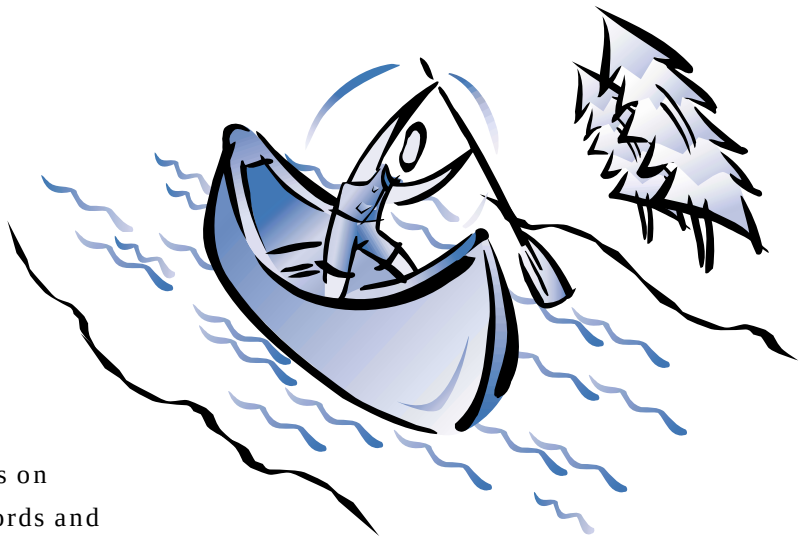
The vast majority (92%) of the victims were boating in Northern California. The most common location of these accidents were northern lakes (44%) followed by the Sacramento-San Joaquin Delta (28%) and the northern coast (16%).

Capsizing and falls overboard represented 72% of fishing-related fatalities. 24% of these fatalities occurred due to overloading/ improper loading, including sitting/standing on the gunwale, bow or transom. Of the 25 fishing-related fatalities, 16 were included in an analysis of alcohol-relatedness. Of these 16 fatalities, 8 (50%) were found to be alcohol-related. Boating accidents involving alcohol are discussedin greater detail later in this section.

Representative Accidents

- The operator and passenger were out fishing in a small open motorboat. The operator's fishing pole began to slip into the water, so he leaned out to grab it. At the same time, the passenger also reached out to grab it. Their shifting weight caused the vessel to capsize. Neither occupant was wearing a life jacket. The operator was unable to stay afloat and drowned.
- Several people were out fishing in a small, rented open motorboat. One of the passengers, who had been drinking heavily, stood up in the vessel and proceeded to the stern to retrieve a beer from a cooler. In doing so, he stepped onto the gunwale, which caused the vessel to capsize. He did not resurface and drowned. A small child aboard the vessel was hospitalized due to the effects of near drowning. No one on board was wearing a life jacket, although life jackets were on board the vessel.
- The operator of a PWC was cruising and suddenly made a U-turn placing him in a head-on situation with an open motorboat. The PWC operator's attention was diverted, as he was observing other vessels in the area and failed to take action to avoid collision. The operator of the open motorboat reduced speed and attempted to change course but could not do so quickly enough and a collision occurred. The PWC operator was killed on impact.
- Three people were attempting to cross a stretch of river in a canoe. The river was very rough and the canoe capsized. Two occupants made it to shore but one drowned. No one was wearing a life jacket. Although they normally wore life jackets, they had decided not to since they were only crossing the river, not going out for an extended period.
- The operator was returning from a day of fishing in a small open motorboat. As he neared the shore, he stood up, leaned toward the dock, lost his balance and fell overboard. He was not wearing a life jacket. The passenger, who could not immediately find a life jacket to throw to him, tried unsuccessfully to rescue him by extending a fishing net, and the operator drowned. He had been drinking all day and was found to have a blood alcohol level over the legal limit.

G. Alcohol Use and Fatal Boating Accidents



Background

In 1987, state law made it illegal to operate a recreational vessel with a blood alcohol level of 0.10% or more. In 1991, the legal limit was decreased to 0.08%. Furthermore, a "boating under the influence" conviction now appears on Department of Motor Vehicles records and can be used to suspend or revoke a vehicle driver's license.

For the purpose of this analysis, only fatal boating accidents were analyzed for alcohol relatedness. A person with a blood alcohol level of 0.035% or higher is assumed to be "under the influence." The National Transportation Safety Board has determined that when the concentration of alcohol in a person's bloodstream reaches this level, noticeable changes in judgment and operational competency occur.

As was discussed earlier (on page 12), testing was not conducted on all victims due to delayed accident reporting or delayed body recovery, which can alter blood alcohol levels.

Findings

Of the 51 fatalities, blood alcohol information was available in 31 of the cases. Of these 31 victims, 12 (39%) had blood alcohol levels equal to or greater than 0.035%.

Type and Cause of Accidents

All of the fatalities were the result of single-vessel accidents. All of the victims drowned and none were wearing life jackets. The majority (75%) involved capsizing or falls overboard. Operator inattention (33%) and improper loading (33%) were the leading causes of accidents.

Type of Vessel

A total of 11 vessels were involved in these accidents, 10 of which were motorized. Of these vessels, 6 were open motorboats, 3 were cabin motorboats, and 1 was a paddle craft. 82% of the vessels were less than 26 feet in length.

Time and Location

Of the 12 alcohol-related fatalities, 42% occurred on weekends throughout the year. 9 occurred in Northern California and 3 in Southern California.

Activity

Of these fatalities, 8 (67%) were involved in fishing-related activities.

Profile of Intoxicated Boaters

An examination of the 12 fatalities reveals that 8 of the 12 victims were passengers who contributed to their deaths due to poor judgment related to alcohol consumption. In some cases, passengers moving around in the vessel fell overboard and drowned. In another case, a passenger stood up, causing the vessel to capsize, resulting in his drowning and others on board sustaining serious injuries.

These situations underscore the Department's long-held view that a sober operator does not ensure passenger safety. Intoxicated passengers in or around vessels are exposed to dangers that would not affect the safety of intoxicated passengers in a vehicle. The "designated driver" concept, which is popular in some boating safety literature, has its roots in automobile safety where the possibility of falling overboard and drowning (or in some years, swimming too close to the propeller) is not a factor. Therefore, based upon the findings of these fatalities and others from other years, the Department recommends that neither operators nor passengers drink alcoholic beverages while boating.

Alcohol-Related Fatalities Involving Motorized Vessels

In January 1986, the Department submitted the Boating Safety Report to the California Legislature. This report analyzed alcohol-related boating accidents between November 1, 1983 and October 31, 1985, and concluded that 59% of all fatalities involving motorized vessels were alcohol-related (where testing could be conducted).

The Department conducted a second alcohol-related boating accident study between January 1, 1993, and December 31, 1994. This study concluded that 23% of all fatalities involving motorized vessels were alcohol-related, a significant reduction from the 1986 study.

Table II-1 (below) shows the percentage of alcohol-related fatalities involving motorized vessels (where alcohol-related testing could be conducted) from 1993 to 2000. In 2000, 28 of the 31 victims tested for alcohol-relatedness were killed in accidents involving motorized vessels. Of that group, 11 (39%) were alcohol-related.

Table II-1

Percetages of Alcohol-Related Fatalities Involving Motorized Vessels	
1993	33%
1994	11%
1995	34%
1996	39%
1997	48%
1998	14%
1999	25%
2000	39%

Section III

Boating Law Enforcement Programs

In support of the Department's mission to provide leadership in promoting the public's right to safe and enjoyable boating on California waterways, the Enforcement Unit's primary objectives are:

- To provide for adequate boating law enforcement through local agencies
- To ensure that the enforcement of California boating laws is uniform throughout the state

The Enforcement Unit meets these objectives through programs that provide officer training and financial aid to local boating law enforcement agencies.

A. Financial Aid Program

The Department's financial aid program provides supplemental funding to local Governments, usually for county sheriff boating patrol units. The funding supports enforcement of State laws and regulations and local ordinances affecting boating activities, inspection of vessels, supervision of water events, search and rescue operations, and recovery of drowned bodies.

During FY1999/00, the Department allocated $8.1 million in funding to 35 counties and 2 cities for boating law enforcement operations including maintenance, equipment, and personnel costs. **Exhibit III-1** (on page 34) presents a summary of services supported during this period by the financial aid program.

Boating law enforcement officers provide important safety education to the boating public. The Department's partnerships with the law enforcement community provide the Department with an excellent resource to help educate and communicate with the recreational boater.

Exhibit III-1
Services Supported by the 2000 Financial Aid Program

Regulation Enforcement	
Verbal Warnings	53,695
Citations	8,735
Physical Arrests	631
Boater Assistance	
Persons Assisted	23,575
Vessels Assisted	16,010
Accident Investigations	783
Search and Rescue Operations	
Searches	1,315
Body Recovery Attempts	67
Boating Safety Presentations	3,835
Vessel Inspections	65,805
Organized Boating Event Supervision	309

In FY1999/00, law enforcement officers provided boating safety education to more than 63,000 vessel operators, primarily by means of public contact and verbal warnings, which act as teaching tools to give the boater more knowledge and help prevent accidents.

B. Law Enforcement Training Program

In California, boating law enforcement is decentralized. There are more than 100 public agencies throughout the State that enforce California's boating laws. Consequently, the interpretation of boating laws could vary from agency to agency, making it confusing for the State's boaters. However, the Department provides an extensive marine law enforcement training program to ensure that boaters can expect uniform law enforcement on waterways throughout the state.

During 2000, the Department conducted 19 one-week classes (760 hours) throughout the State and trained nearly 500 marine patrol officers. These courses are designed for law enforcement personnel and are taught by law enforcement specialists who bring great expertise and credibility to the training program.

The Department offers training classes in the following areas:

- Seamanship-Rescue Boat Operations
- Boating-Basic Skills Training
- Coastal Piloting and Navigation
- Marine Firefighting
- Basic Boating Safety and Enforcement
- Boating Accident Investigation/Reconstruction
- Boating Intoxication Enforcement

Section IV

Boating Safety Education Programs

The Safety Education Unit has two primary objectives to support the Department's mission:

- To provide accessible boating safety education for youths and adults
- To educate and protect youth operators by developing and distributing boating and aquatic safety material to California schools.

The Department relies on partnerships with several organizations (educational institutions, aquatic centers, the U.S. Coast Guard Auxiliary and the U.S. Power Squadrons) to provide boating safety education. The Department provides educational institutions with free course materials on boating and aquatic safety information. Aquatic centers that offer on-the-water safety education are eligible for Department grants and scholarships. Last year, these partnerships provided 691,000 individuals with boating safety education.

A. Educational Outreach to School-Age Children

AquaSMART

The Department developed the *AquaSMART* curriculum to educate school-age children about water safety. The course is a three-part series for K-2, 3-5, and 6-8 grades. Course materials cover a variety of topics involving boating and aquatic safety. Nearly 500,000 elementary school students benefited from the *AquaSMART* education programs in 2000.

The Department also disseminates the *AquaSMART Boating* program for high school students that incorporates key safety concerns identified by accident statistics. Four types of boating are addressed: personal watercraft, powerboating, sailing, and paddling. The course is available to schools, aquatic centers and youth organizations. In 2000, a total of 35,000 high school students were educated using the *AquaSMART Boating* program.

Poster Contest

Nearly 6,000 students participated in the Department's eighth annual poster contest, *Safe and Wise Water Ways*, in 2000. Students in the K-8 grade levels are invited to submit original artwork depicting aquatic and boating safety themes. One winner from each grade level is selected and featured on the Department's annual calendar poster. Corporate sponsors contribute to the success of this program by providing awards for the winners. A Department representative visits each winning school to present the sponsors' awards and give a presentation on aquatic safety with an emphasis on life jackets. Participating students become water wise and help others stay safe by sharing their safety lessons through the medium of art. Their artwork is also used in displays and in other programs in the Education Unit.

Interactive Tools

The Department lends two interactive robotic boats, SeaMore and Sea Lily, to boating safety organizations and marine law enforcement agencies. The remote-controlled robots communicate boating safety information to children at safety fairs and boating events.

B. Educational Outreach to the General Public

Aquatic Center Grant Program

The Department provides grant monies to aquatic centers throughout the state to enhance their programs. Grants can be used either for scholarships or for the purchase of equipment to be used in boating and education classes. This grant program allows the Department to increase the number of boaters who receive hands-on boating safety training.

Aquatic centers, operated by universities, cities, counties, and nonprofit organizations, provide on-the-water boating safety education in kayaking, canoeing, water skiing, power boating, sailing, windsurfing, and personal watercraft operation. These programs target university students, the general public, persons with disabilities, and disadvantaged youths.

During the 1999/00 fiscal year, the Department allocated $615,000 in grants to 28 aquatic centers, which then provided nearly 120,000 individuals with hands-on aquatic and boating education.

Home Study Course

The Department provides a 94-page booklet to the public called the *California Boating: A Course for Safe Boating*. This course is designed for home study, allowing readers to progress at their own pace. This comprehensive course covers State and

federal boating law, rules of the road, boat handling, required and recommended equipment, navigational aids, and other topics. The course contains an optional exam to be completed and forwarded to the Department for grading. Those who pass the course are awarded with certificates that are recognized by many insurance companies for boat insurance discounts. In 2000, a total of 35,000 home study education course materials were distributed to the general public.

National Safe Boating Week

Each year, the President and the Governor proclaim the week before Memorial Day as National Safe Boating Week. The Department organizes a number of boating safety events during this week designed not only to promote safe boating, but also to promote the fun of boating. Activities featured during this week include:

- Boating fairs featuring contests to win life jackets
- Safety promotional product giveaways
- Boating demonstrations
- Highlights of annual boating accident statistics

- News releases featuring boating safety tips
- Interviews with the media
- Life jacket trade-ins

Public Service Announcements (PSAs)

Outdoor Media Campaign

The education unit also publicizes safety messages through an outdoor media campaign. The Department uses permanent and mobile billboards on key waterways to promote boating safety throughout the boating season and during holiday weekends. Taking the message directly to boaters, colorful oversized "all-weather" posters adorn launch ramps, fuel docks, and marina and park entrances, reminding boaters to wear a life jacket and take a boating safety course. In conjunction with the California Coastal Commission's Adopt-a-Beach Program, the Department also placed safety messages on refuse barrels located on docks and in picnic areas.

Radio Message Campaign

In conjunction with the Department's outdoor media campaign, the Department developed a statewide radio campaign, which contains a myriad of safety tips and highlights the following:

- The importance of wearing life jackets
- The dangers of mixing alcohol and boating
- River safety

- The dangers of horseplay on PWC
- Overall "know before you go" boating message that combines general boating safety preparedness with a message reminding boaters to be environmentally responsible.

The campaign runs year round in Southern California and from May-October statewide, targeting California's top ten boating accident areas. Over thirty radio stations across the State air safety messages reminding boaters to "Boat Smart from the Start."

Televised Message Campaign

In 2000, the Department distributed 2 television PSAs-one on maintaining a proper lookout and the other on the importance of wearing life jackets.

C. Public Information Education Through Pamphlets

In 2000, the Department distributed 1.2 million copies of boating safety literature to the public. The Department's public information unit publishes and distributes more than 50 different boating safety publications. The publications cover a variety of topics emphasizing boating safety on California waterways.

Materials focus on subjects such as key safety issues for individual waterways, required equipment, and operational laws. The unit mails these publications directly to individuals and provides various organizations with materials for distribution. Department representatives also attend numerous safety fairs and boat shows, distributing literature and answering questions. Currently, the Department of Motor Vehicles mails safety brochures with each new vessel registration and each renewal.

D. Abandoned Watercraft Removal Program

As part of its commitment to provide clean, safe and enjoyable recreational boating in California, the Department administers a program for removal of abandoned watercraft and substantial navigational hazards from California navigable waterways. Specifically, grant funds can be used by public agencies for the removal, storage and/or disposal of these navigational hazards. In 2000, the Department granted 9 public agencies a total of $341,685 to remove 75 abandoned vessels and 15 other substantial hazards to navigation.

Section V

2000 Program Enhancements, Initiatives, and New Laws

New Laws

Children

As of January 1, 2001, California law now requires children under the age of 12 to wear a life jacket when aboard an underway vessel 26 feet in length or less.

Exceptions to this law include the operation of a sailboat that does not exceed 30 feet in length or a dinghy used directly between a moored boat and the shore, or between two moored boats.

Personal Watercraft and Water Skiers

As of January 1, 2001, every person on board a personal watercraft and any person on water skis, an aquaplane or similar device must wear a Coast Guard-approved Type I, II, III or V life jacket.

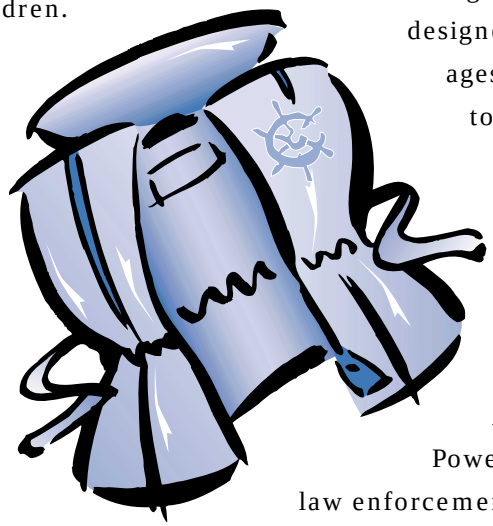
Exceptions to this law include a person aboard a personal watercraft or being towed behind a vessel, if that person is a performer in a professional exhibition, or preparing to participate in an official regatta, marine parade, tournament or exhibition. In lieu of wearing a Type I, II, III or V Coast Guard-approved life jacket, any person engaged in slalom skiing on a marked course, or any person engaged in barefoot, jump or trick water skiing may elect to wear a wetsuit designed for the activity and labeled by the manufacturer as a water ski wetsuit. A Coast Guard-approved Type I, II, III, or V life jacket must be carried in the tow vessel for each skier electing to wear a wetsuit.

All Vessels

As of January 1, 2001, any person convicted of one moving violation while operating a vessel shall be ordered by the court to complete and pass a boating safety course approved by the Department of Boating and Waterways. Proof of completion and passage of the course must be submitted to the court within seven months of the time of the conviction.

Life Jacket Use

- The Department continues the Life Jacket Partner Program and the T-Shirt Program aimed at increasing the use of life jackets by children.
- The Department continues the Dairy Queen and Carl's Jr. program. Children wearing a life jacket are rewarded with these coupons given by marine law enforcement officials on the water.
- The Department continues a radio campaign promoting the use of life jackets. This safety message is being heard on radio stations throughout California and targets boaters in high accident areas.
- The Department continues its outdoor media campaign, placing billboards in areas where accidents are most prevalent. The billboards remind boaters about the importance of wearing a life jacket while boating.
- The Department produced a new 30-second public safety announcement for television that stresses the importance of wearing a life jacket.
- The Department is encouraging the use of life jackets at safety fairs and boat shows throughout the State, through the annual *Safe and Wise Water Ways* poster contest for children, and at National Safe Boating Week events.



Personal Watercraft

- The Department continues development of a new PWC Practical Handling Course. This course focuses on PWC operation and safe boat handling. The curriculum is designed for operators of all ages and will be available to the general public. It is designed to be incorporated into existing safety programs offered by organizations such as the U.S. Coast Guard Auxiliary, the U.S. Power Squadrons, marine law enforcement agencies, and aquatic centers. This course should be available in Summer 2001.
- The Department continues to place a 60-second radio message highlighting the dangers of "horseplay" while operating a PWC, which airs on radio stations throughout California.
- The Department produced a 30-second PSA on the subject of personal watercraft safety for distribution to television stations statewide this summer.

Youth Operator Safety

- This year, the *AquaSMART Boating* program for high school students continued to be distributed to schools throughout California. This course incorporates key safety concerns identified by accident statistics. Four types of boating are addressed: personal watercraft, powerboating, sailing, and paddling. The course is available to schools, aquatic centers, and youth organizations.
- The curriculum for youth programs includes information on the dangers of alcohol and drug use, especially when boating. Zero tolerance is emphasized for all persons engaged in aquatic recreation.
- The Department will continue to publicize the law requiring operators to be at least 16 years of age to operate most vessels alone.

Alcohol

- The Department's radio campaign continues to promote the dangers of drinking alcohol while boating. This safety message is airing on radio stations throughout California and targets boaters in areas with the highest accident rates.
- The Department produced a 30-second PSA on the dangers of mixing alcohol and boating which has been distributed to television stations statewide.
- The Department continues to notify The Department continues to notify law enforcement agencies statewide about alcohol-related fatalities and encourage them to strengthen their educational and enforcement efforts in this area. The Department reinforces this message at all of its law enforcement training classes.

Improved Internet Access

- The AquaSMART Internet education pages (dbw.ca.gov/aquasmart) were developed to supplement the Department's AquaSMART curriculum series. The design is bright and content addresses boating safety in a fun manner, as the webpage is targeted primarily at children exposed to the AquaSMART curriculum series. The secondary audience includes teachers, parents, and other boaters. A link to the Department's homepage is provided for persons seeking more detailed boating safety information.

Other Safety Enhancements

- The Department produced a short video on general boating safety laws, which was completed in March, 2001.
- The Department produced a public safety announcement for television, highlighting the importance of keeping a proper lookout while boating, which will be distributed to television stations statewide this summer.
- The Department is producing a brochure promoting the importance of taking hands-on boating courses to improve safety on the water. The brochure will identify aquatic centers throughout the State where a variety of boating courses are provided. The brochure will be finished in Fall 2001.
- The Department maintains its radio message promoting safe boating during whitewater activities which airs on radio stations throughout the State. To further enhance river safety, the Department offers an assortment of river guides. The Department continues to warn boaters about hazardous water conditions on California's rivers, especially during spring and early summer when water levels are high from snow pack run-off.

- The Department continues its "know before you go" radio message that combines general boating safety preparedness with a message reminding boaters to be environmentally responsible.
- The Department continues work on a new water skiing safety video. The updated version will include not only traditional water skiing activities, but also wake boarding, knee boarding, inner tubing, and air chair activities. This project should be completed in Spring 2002.
- The Department has increased outreach efforts to anglers by placing articles and messages in fishing publications throughout the state.
- The Law Enforcement unit continues to conduct the Accident Reconstruction Course on the water, providing staged accidents for reconstruction by students. Many law enforcement officers believe this course helps them reconstruct accidents more accurately.

Section VI

Accident Data Charts

The charts in this section are designed to provide general statewide information on boating accidents. Three groups of charts give information on:

- **All Accidents**
- **PWC Accidents**
- **Fatal Accidents.**

Charts for All Accidents

Some charts are organized by the number of accidents, which totaled 906. Other charts are organized by the number of vessels involved in accidents, which totaled 1,288. The totals listed on the charts **Type of Accident** and **Cause of Accident** exceed the total number of accidents because many accidents fell into more than one category. The chart **Operators Involved in All Accidents by Age** shows a total of 1,288 vessels. The chart also shows a total of 1,139, which indicates the total number of operators, as 149 vessels involved in accidents did not have operators.

Charts for PWC Accidents

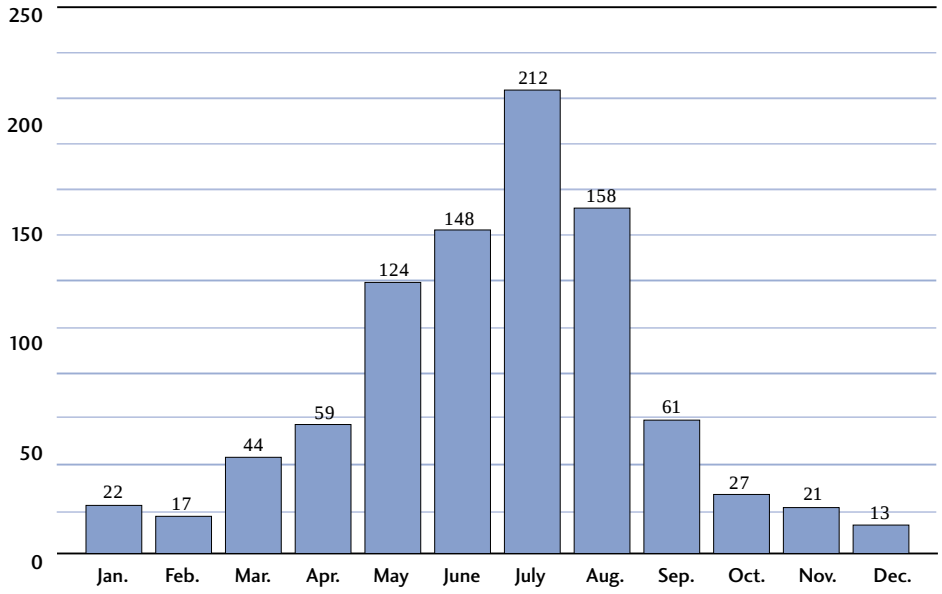
The totals listed on the charts **Type of Accident** and **Cause of Accident** exceed the total number of PWC accidents, which was 293, because many accidents fell into more than one category.

Charts for Fatal Accidents

Totals on most of the charts containing information for fatal accidents add up to the total number of fatalities, which was 51. Other charts are organized by the total number of vessels involved in fatal accidents, which was 46. The total listed on the chart **Cause of Accident** exceeds the total number of fatalities because many accidents involving fatalities fell into more than one category.

Chart 1 – Accidents by Month

Total Accidents = 906

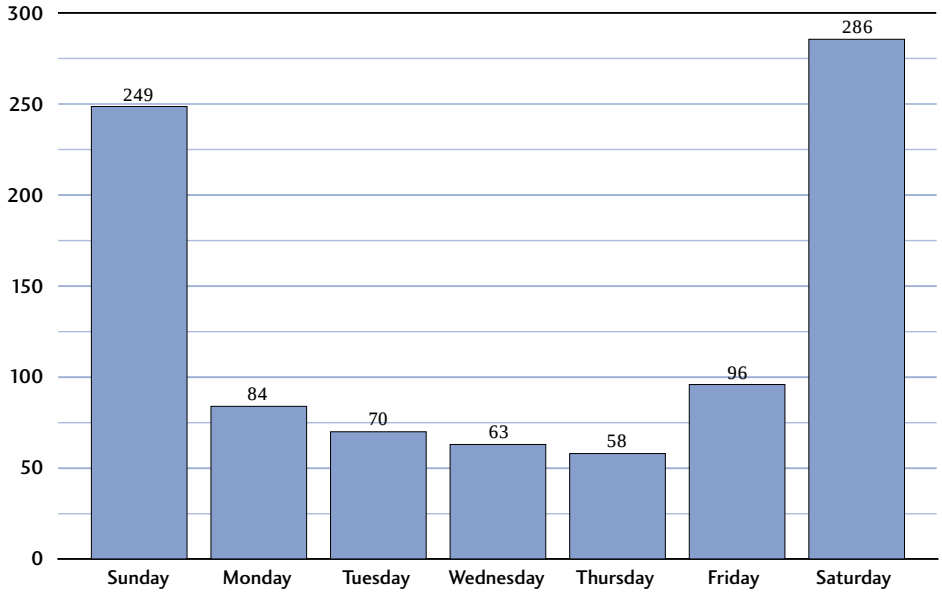


did you know

Most boating accidents occurred from May through September with the greatest number of accidents occurring in July.

Chart 2 – Accidents by Day of the Week

Total Accidents = 906

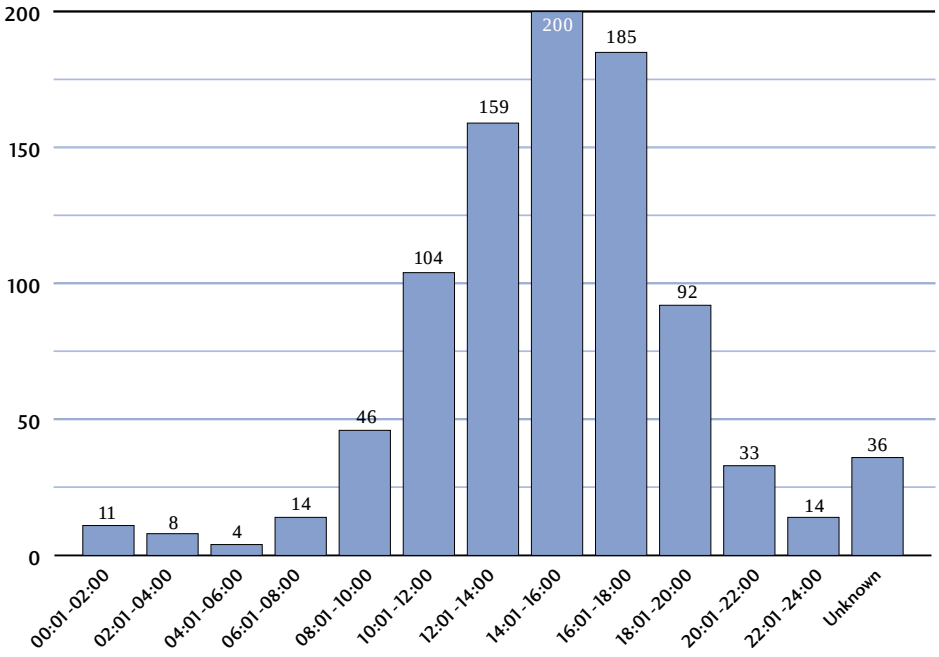


did you know

59% of boating accidents occurred on weekends (Saturday and Sunday).

Chart 3 – Accidents by Time of Day

Total Accidents = 906



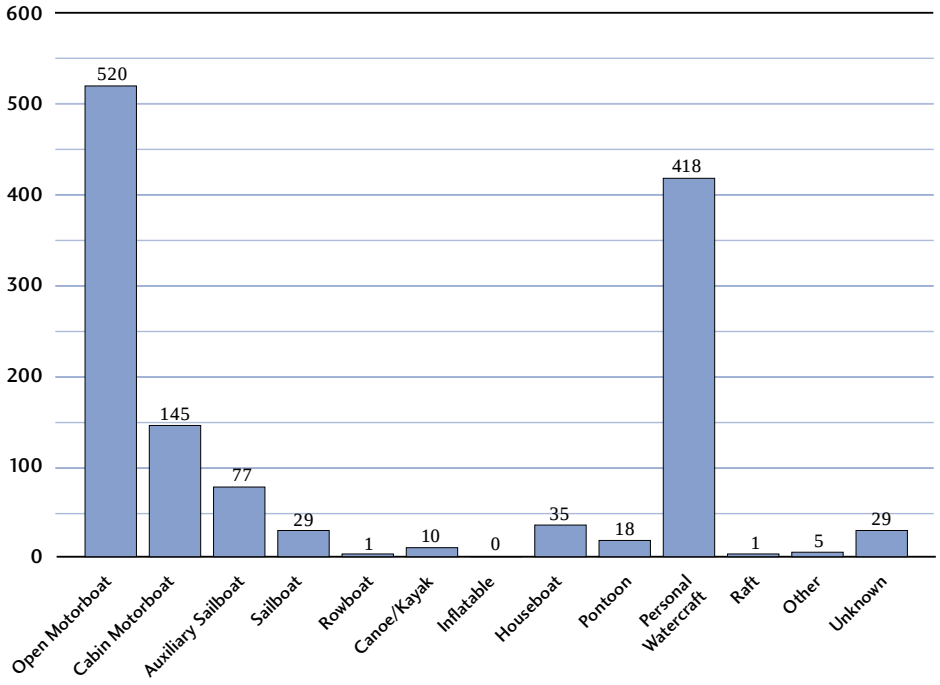
Time on this chart is represented by a 24-hour clock. Time is counted normally through the noon hour. After noon, add 1:00 for each additional hour up to 24:00 (midnight). Thus 2:00 p.m. is shown as 14;00 (12:00 + 2:00), etc.

did you know?

The majority of boating accidents occurred between 12:00 p.m. and 6:00 p.m. with the largest number occurring between 2:00 p.m. and 7:00 p.m.

Chart 4 – Vessels Involved in All Accidents by Type

Total Vessels = 1,288

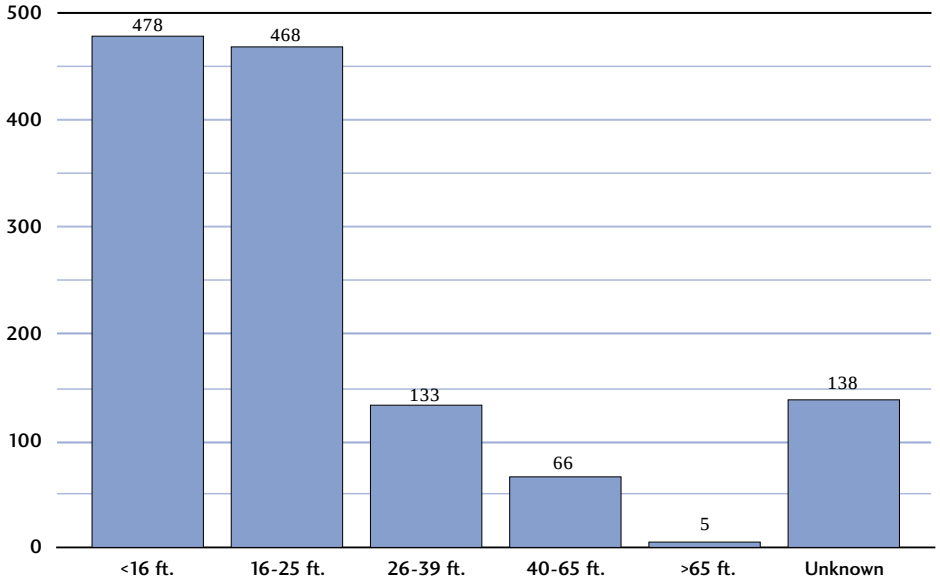


did you know

Open motorboats and personal watercraft (PWC) comprised 73% of all vessels involved in accidents.

Chart 5 – Vessels Involved in All Accidents by Length

Total Vessels = 1,288

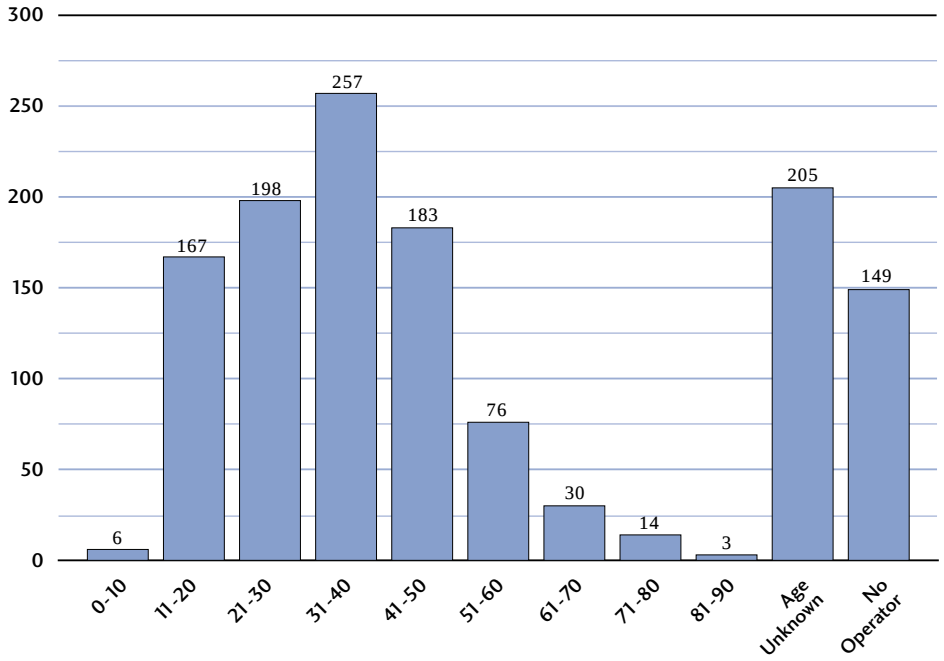


did you know

Vessels less than 16 feet in length were involved in more accidents than any other category followed by vessels 16-25 feet in length. These two categories accounted for 73% of all vessels involved in accidents.

Chart 6 – Operators Involved in All Accidents by Age

Total Operators = 1,139
Total Vessels = 1,288



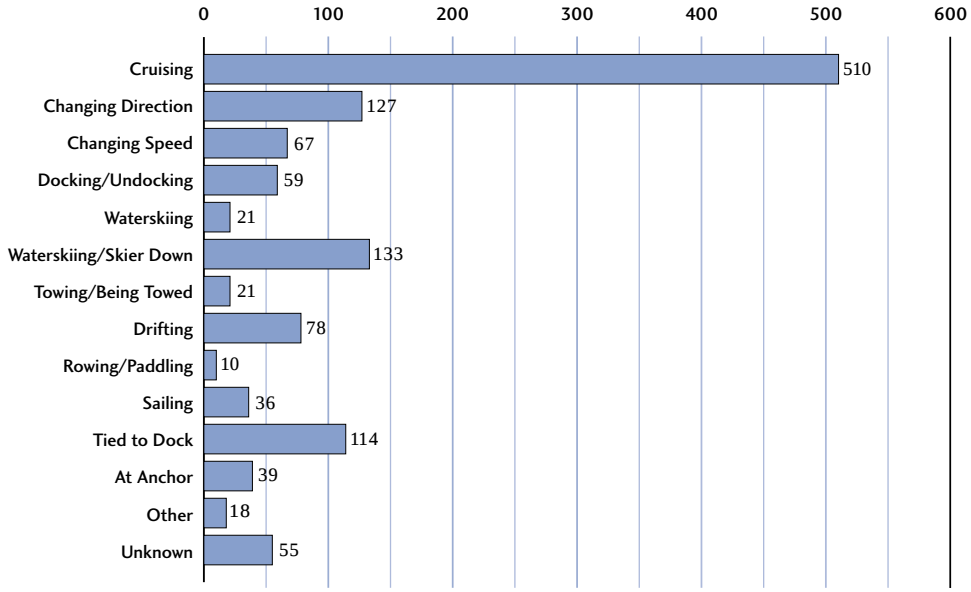
"No Operator" refers to accidents involving vessels where there was no operator present at the time of the accident. Most of these vessels were in vessel slips, tied to docks, or moored, and were struck by other vessels. Some accident reports submitted to the Department do not include operator age information, as indicated by the "Age Unknown" category.

did you know

Operators in the 31-40 age group were involved in more accidents than any other age group.

Chart 7 – Operation at Time of Accident

Total Vessels = 1,288

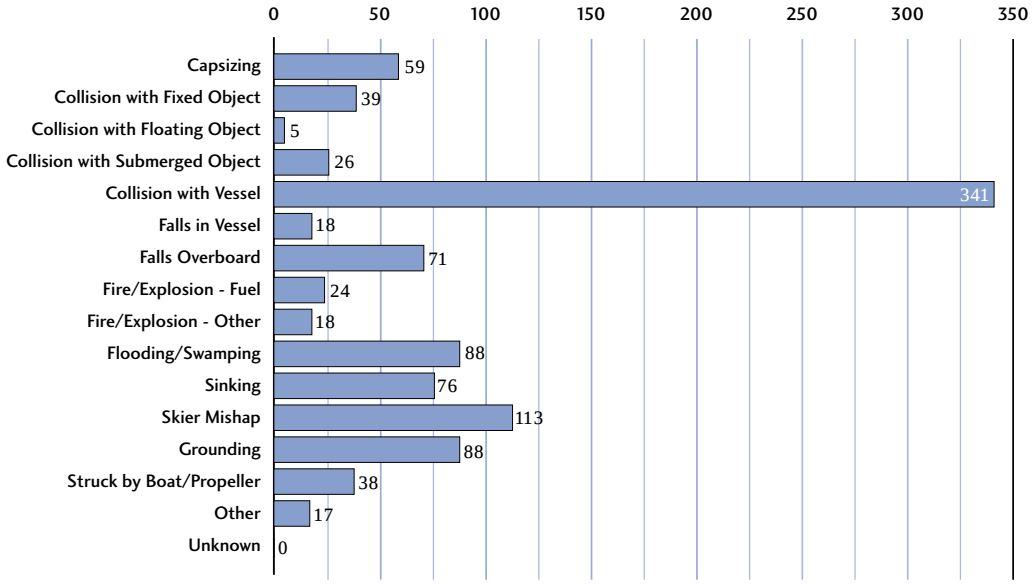


did you know

The most common type of vessel operation preceding an accident was cruising.

Chart 8 – Type of Accident

Total Types = 1,021
Total Accidents = 906



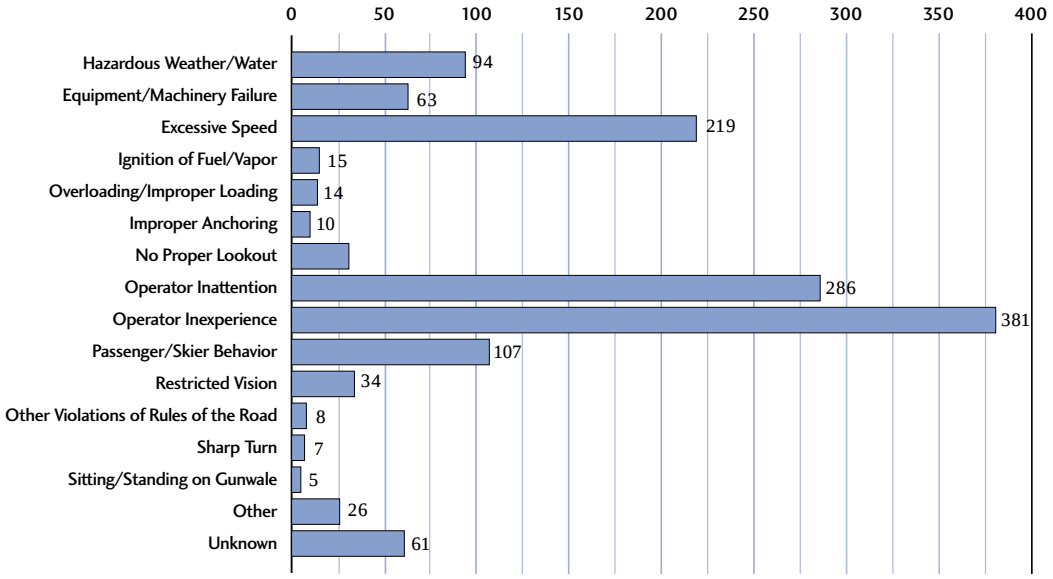
Some accidents are represented by more than one accident type, which accounts for the accident types exceeding the number of accidents. An example of such an accident is when an operator falls overboard and is then struck by another vessel. Such an accident would be represented in both the "Falls Overboard" category and the "Struck by Boat/Propeller" category, since both of these occurrences were significant components of the accident.

did you know

By far, vessels colliding with other vessels were the most common type of accident, accounting for 38% of all accidents.

Chart 9 – Cause of Accident

Total Causes = 1,361
Total Accidents = 906



Many accidents had more than one cause, which is reflected in this chart. The "Other" category includes causes that do not fit into any of the categories listed above.

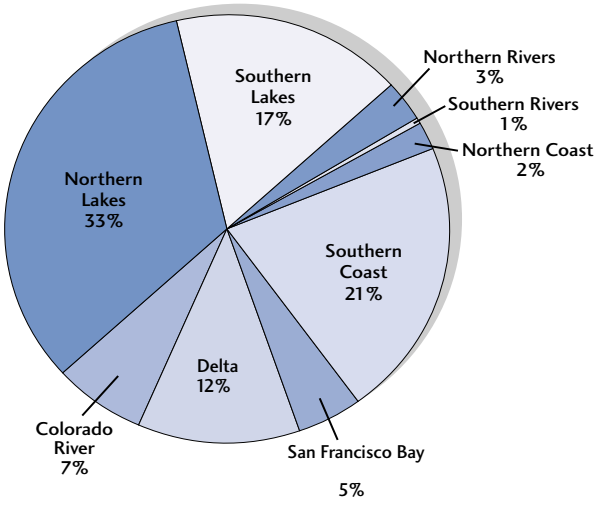
did you know

Operator inexperience was the most common cause of all accidents (42%) followed by operator inattention (32%) and excessive speed (24%).

Chart 10 – Accident Locations

Total Accidents = 906

Number of Accidents	
Northern Lakes	300
Southern Lakes	153
Northern Rivers	28
Southern Rivers	4
Northern Coast	19
Southern Coast	191
San Francisco Bay	43
Delta	107
Colorado River	61
Total	906

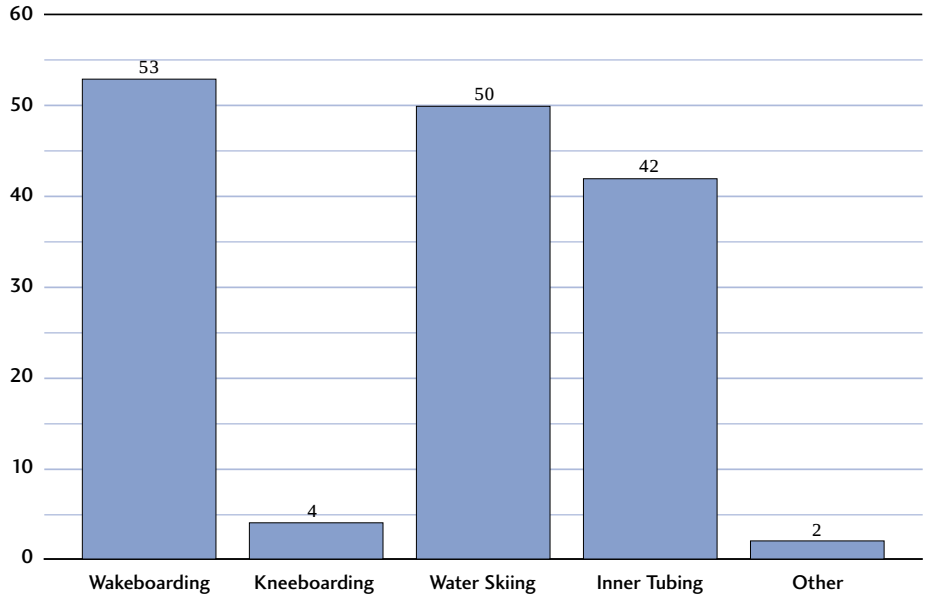


did you know

The largest number of accidents occurred on lakes (50%) followed by oceans/bays 28%.

Chart 11 – Water Skiing Accidents

Total Activities = 151
Total Accidents = 146



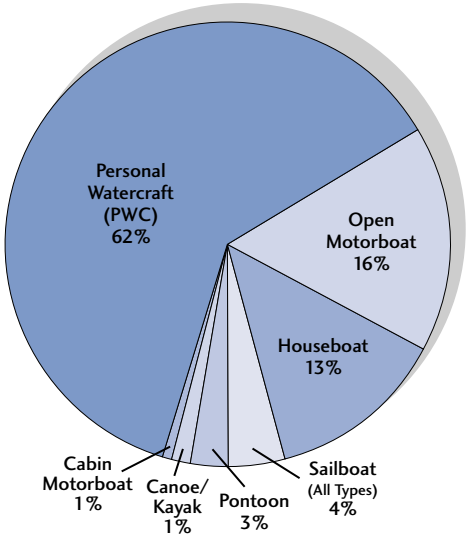
5 accidents each involved two vessels, both involved in different types of water skiing-related activities. For example, a vessel towing a water skier was involved in an accident with a vessel towing a wakeboard. This type of accident is represented in both the water skiing and the wakeboarding categories. This accounts for the total number of activities totaling 151 and the total number of accidents totaling 146.

did you know

For the first time, accidents involving wakeboarding exceeded those involving traditional water skiing.

Chart 12 – Rented Vessels Involved in All Accidents by Vessel Type

Number of Vessels	
PWC	90
Open Motorboat	24
Houseboat	19
Sailboat *(All Types)*	6
Pontoon	4
Canoe/Kayak	2
Cabin Motorboat	1
Total	146



did you know

The majority of rented vessels involved in accidents were PWC.

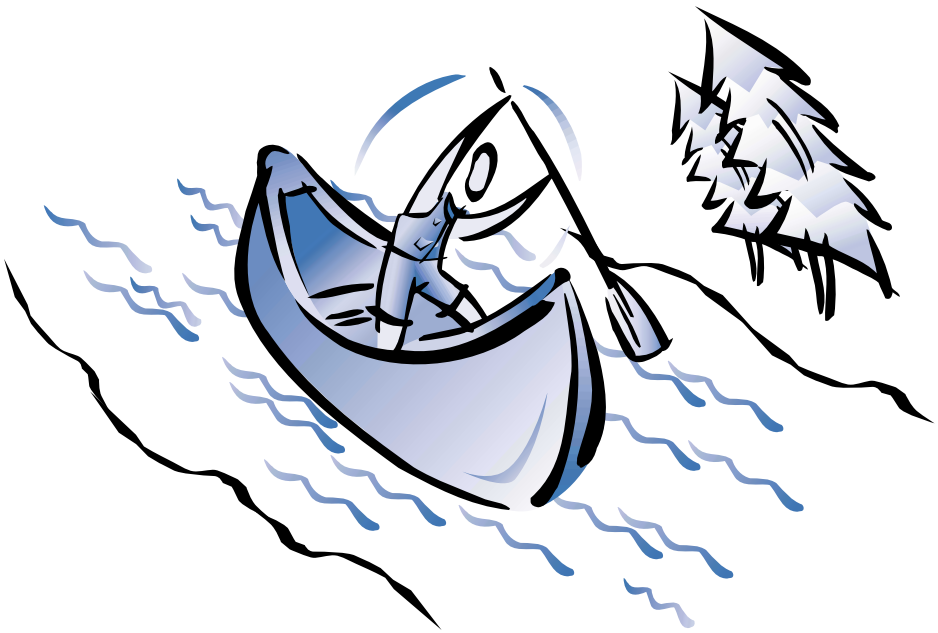
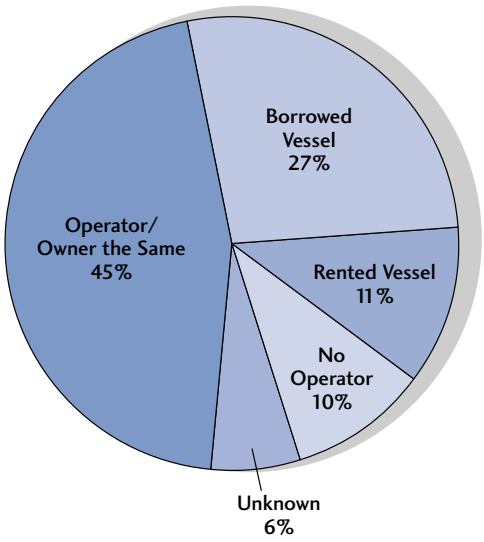


Chart 13 - Vessels, PWC and Open Motorboats Involved in Accidents



Vessels Involved in All Accidents

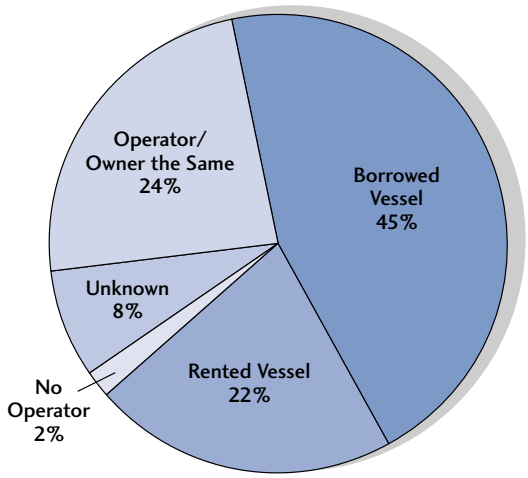
Rented/Borrowed/Owned

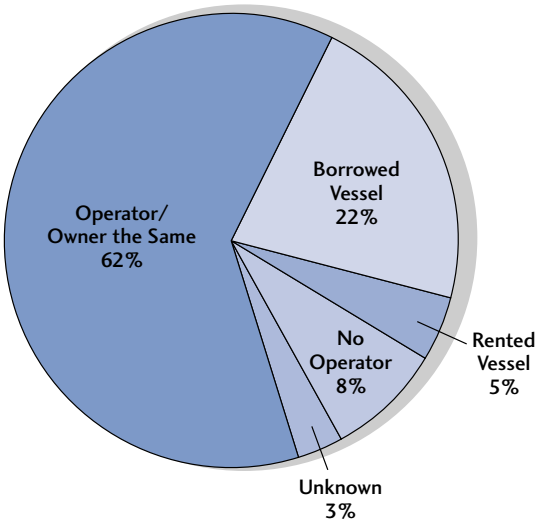
Number of Vessels	
Operator/Owner the Same	584
Borrowed Vessel	348
Rented Vessel	146
No Operator	128
Unknown	82
Total	1,288

PWC Involved in Accidents

Rented/Borrowed/Owned

Number of PWCs	
Operator/Owner the Same	99
Borrowed Vessel	189
Rented Vessel	90
No Operator	8
Unknown	32
Total	418





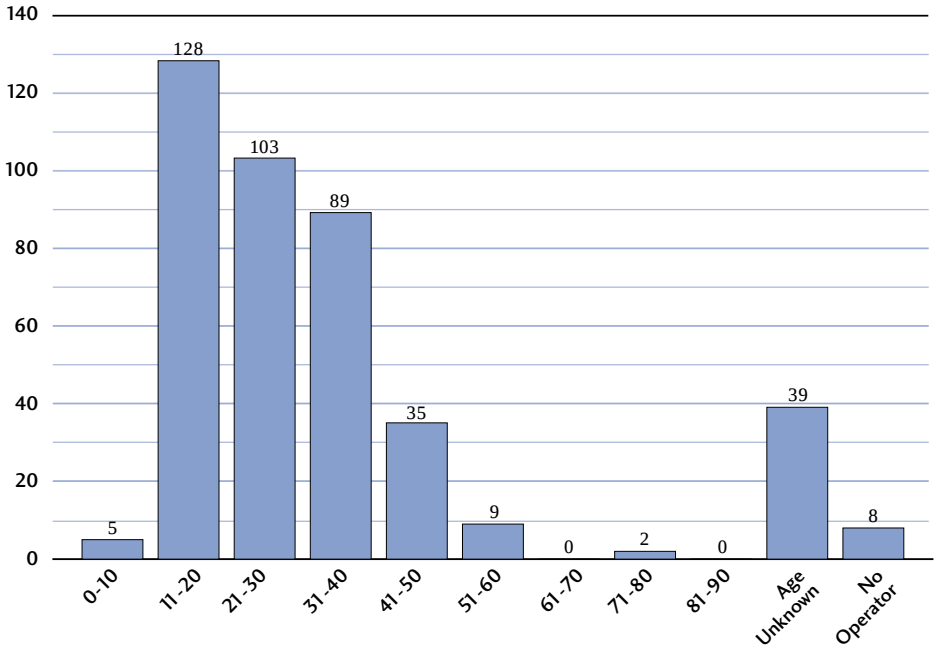
Open Motorboats Involved in Accidents

Rented/Borrowed/Owned

Number of Open Motorboats	
Operator/Owner the Same	323
Borrowed Vessel	113
Rented Vessel	24
No Operator	43
Unknown	17
Total	520

Chart 14 – PWC - Operators Involved in Accidents by Age

Total Vessels = 418



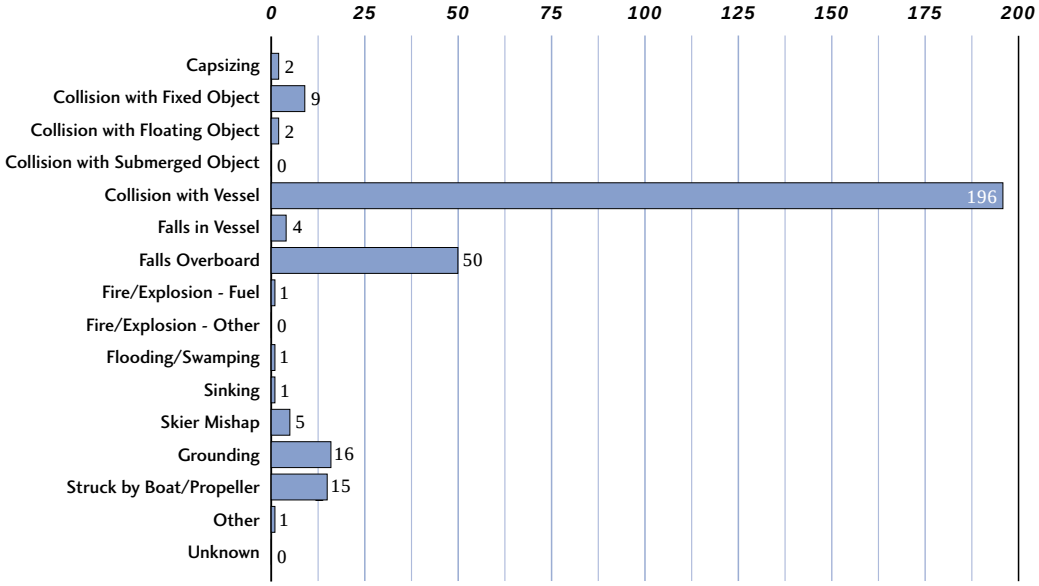
"No Operator" refers to accidents involving vessels where there was no operator present at the time of the accident. Most of these vessels were in vessel slips, tied to docks, or moored, and were struck by other vessels. Because PWC do not tend to be housed in slips, due to their small size, the number of vessels in this category is much smaller than the "No Operator" category for overall boating accidents. Some reports submitted to the Department do not include operator age information, as indicated by the "Age Unknown" category.

did you know

Operators in the 11-20 age group were involved in more accidents than any other age group followed by operators in the 21-30 age group.

Chart 15 – PWC - Type of Accident

Total Types = 303
Total Accidents = 293



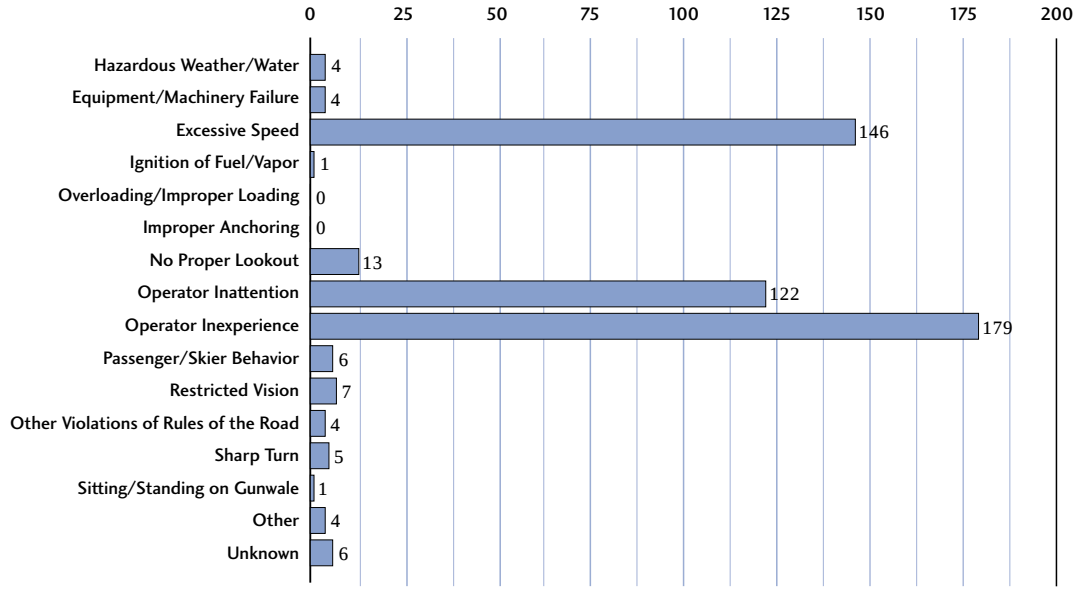
Some accidents are represented by more than one accident type, which accounts for the accident types exceeding the number of accidents. An example of such an accident is when an operator falls overboard and is then struck by another vessel. Such an accident would be represented in both the "Falls Overboard" category and the "Struck by Boat/Propeller" category, since both of these occurrences were significant components of the accident.

did you know

Collisions with other vessels accounted for 67% of all PWC-related accidents.

Chart 16 – PWC - Cause of Accident

Total Causes = 502
Total Accidents = 293



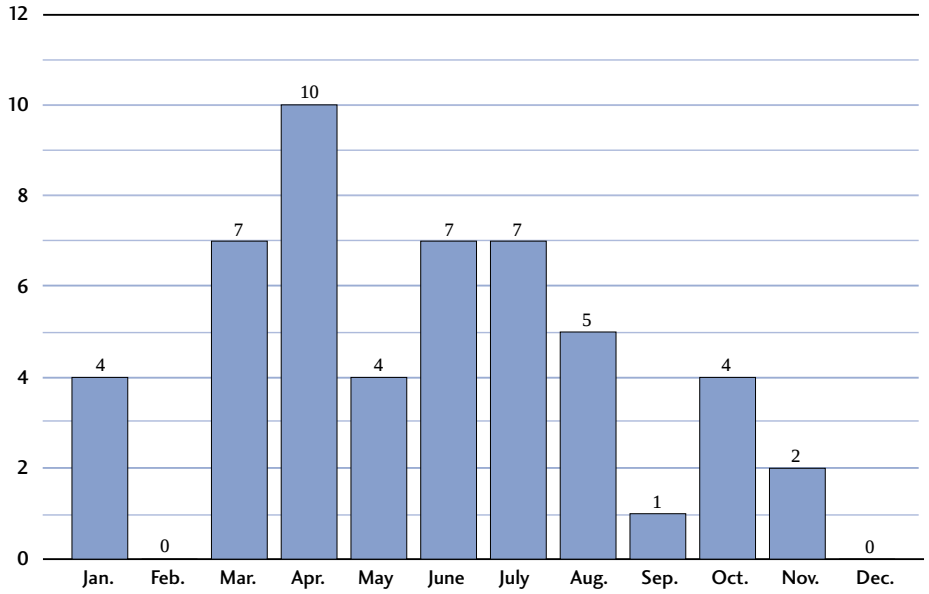
Many PWC-related accidents had more than one cause, which is reflected in this chart. The "Other" category includes causes that do not fit into any of the categories listed above.

did you know?

Operator inexperience (61%), excessive speed (50%) and operator inattention (42%) were the most common causes of PWC-related accidents.

Chart 17 – Fatalities by Month

Total Fatalities = 51

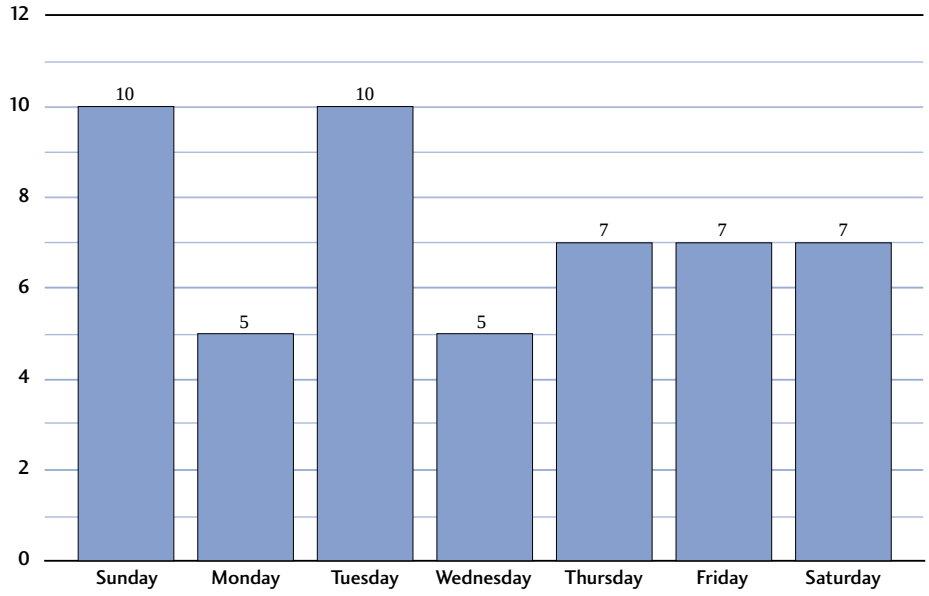


did you know

The largest number of fatalities occurred during the month of April followed by June and July.

Chart 18 – Fatalities by Day of the Week

Total Fatalities = 51

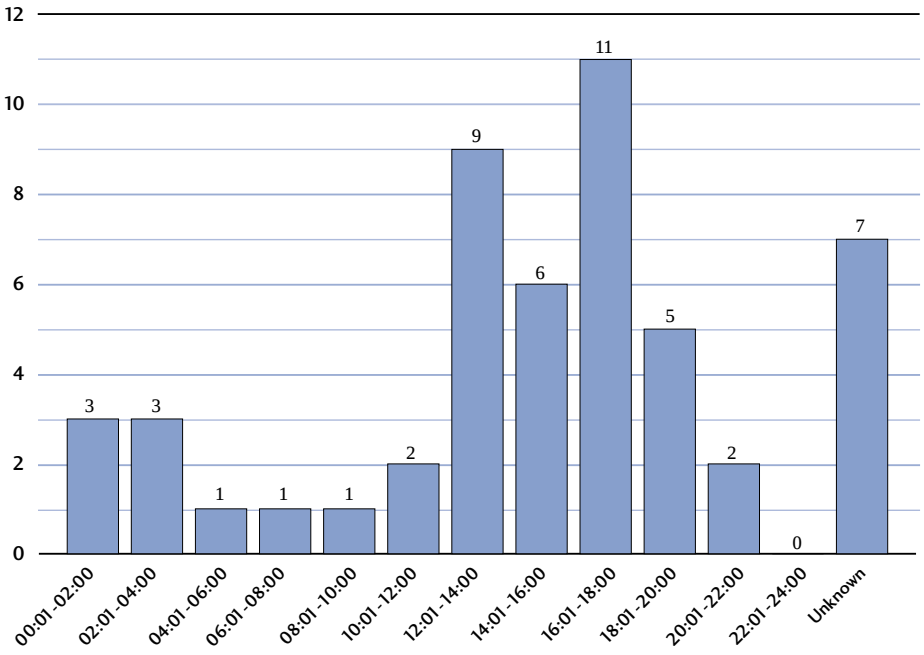


did you know

Fatal boating accidents occurred consistently throughout the week with the largest number occurring on Saturday and Tuesday.

Chart 19 – Fatalities by Time of Day

Total Fatalities = 51



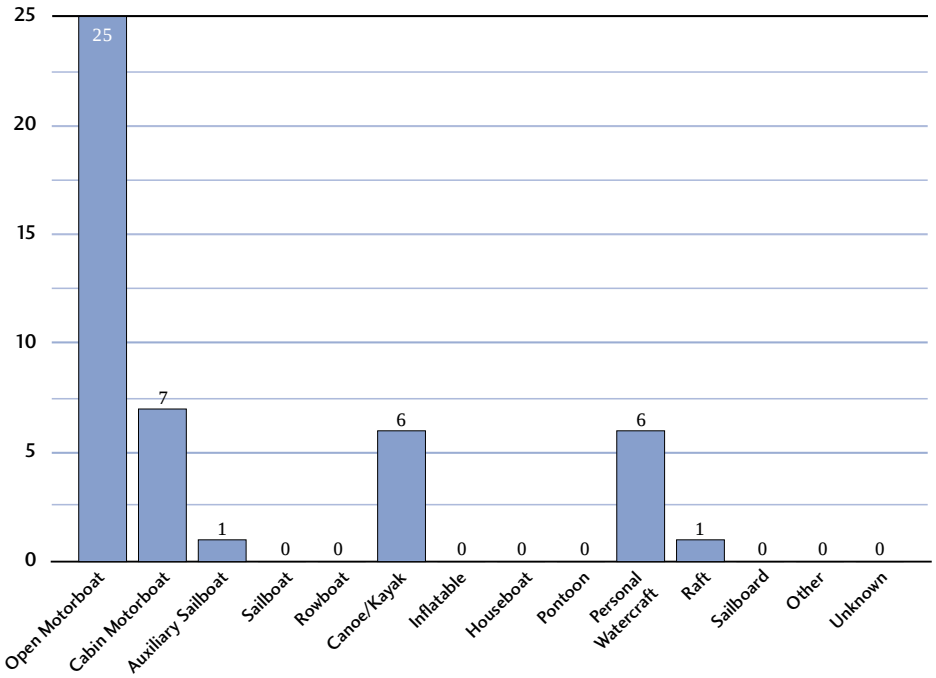
Time on this chart is represented by a 24-hour clock. Time is counted normally through the noon hour. After noon, add 1:00 for each additional hour up to 24:00 (midnight). Thus 2:00 p.m. is shown as 14:00 (12:00 + 2:00), etc.

did you know?

The largest number of fatalities occurred between 12:00 p.m. and 6:00 p.m.

Chart 20 – Fatalities by Type of Vessel

Total Vessels = 46
Total Fatalities = 51

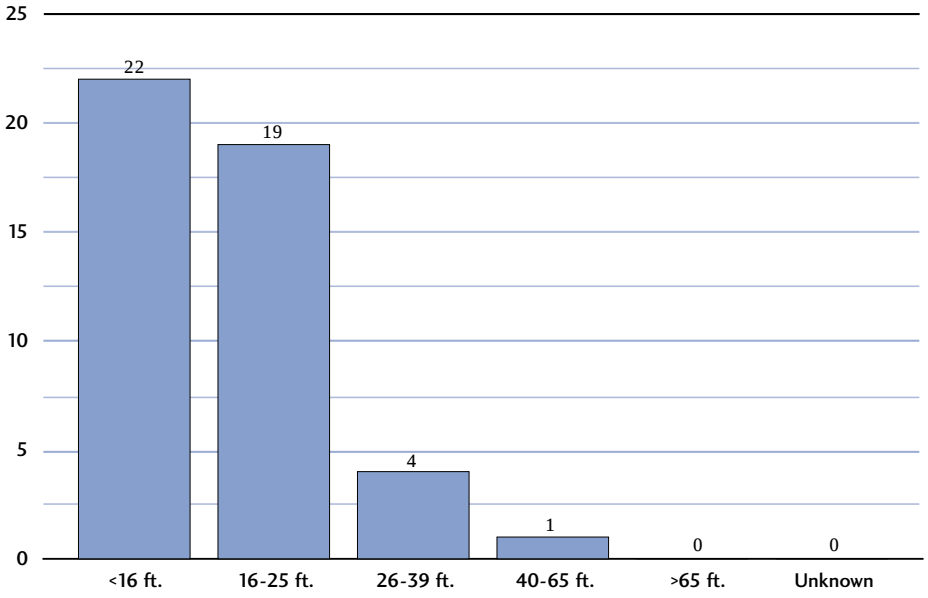


did you know

The majority of vessels involved in fatal boating accidents were open motorboats.

Chart 21 – Fatalities by Length of Vessel

Total Vessels = 46
Total Fatalities = 51

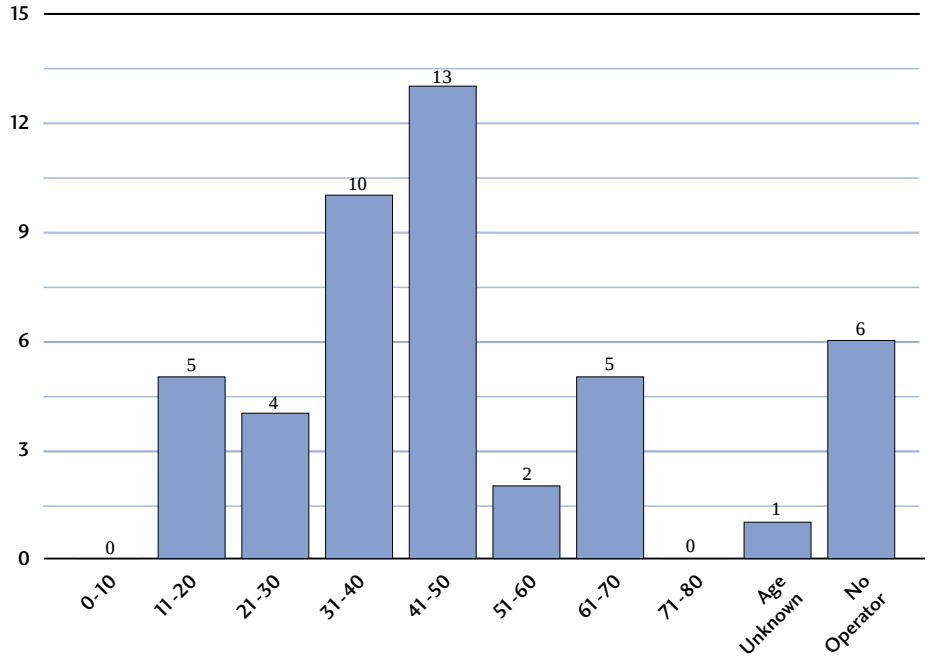


did you know

The overwhelming majority of vessels (89%) involved in fatal boating accidents were less than 26 feet in length. The most common lengths of vessels involved in these accidents was less than 16 feet in length.

Chart 22 – Operators Involved in Fatal Accidents by Age

Total Operator = 46
Total Fatalities = 51

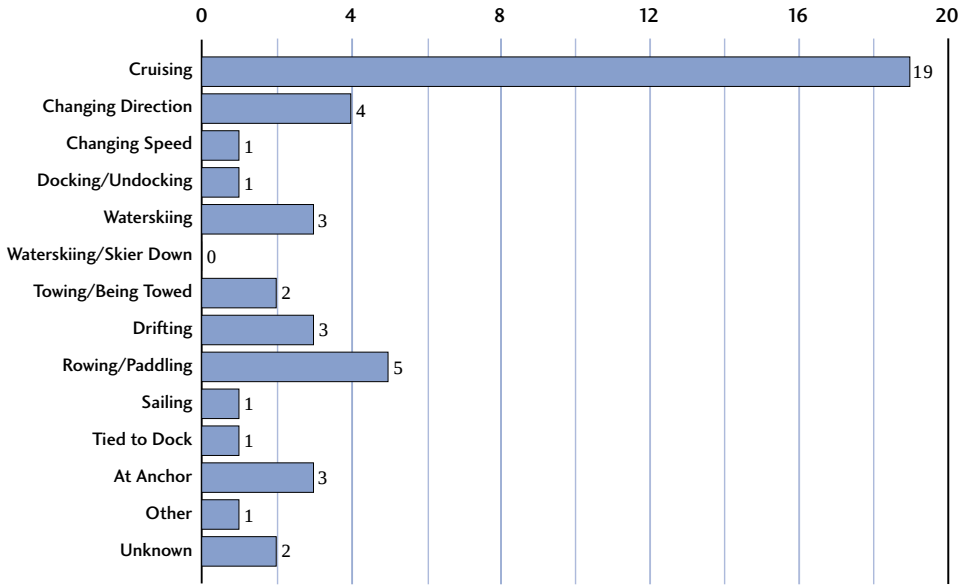


did you know

Operators from the 41-50 age group were involved in more fatal accidents than any other age group.

Chart 23 – Fatalities by Operation at Time of Accident

Total Vessels = 46
Total Fatalities = 51

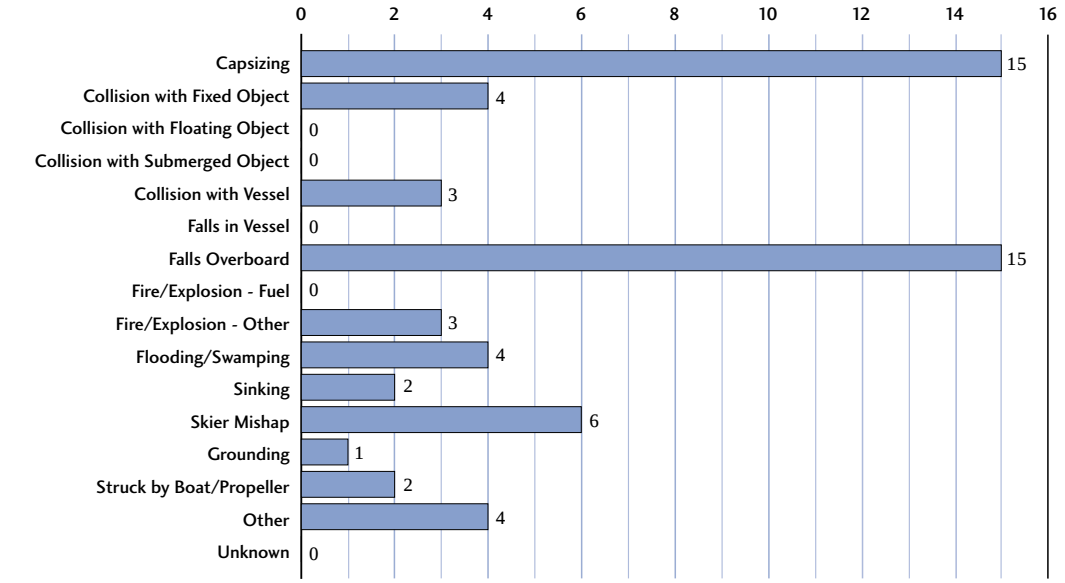


did you know

41% of the vessels involved in fatal accidents were cruising at the time of the accident.

Chart 24 – Fatalities by Type of Accident

Total Types = 59
Total Fatalities = 51



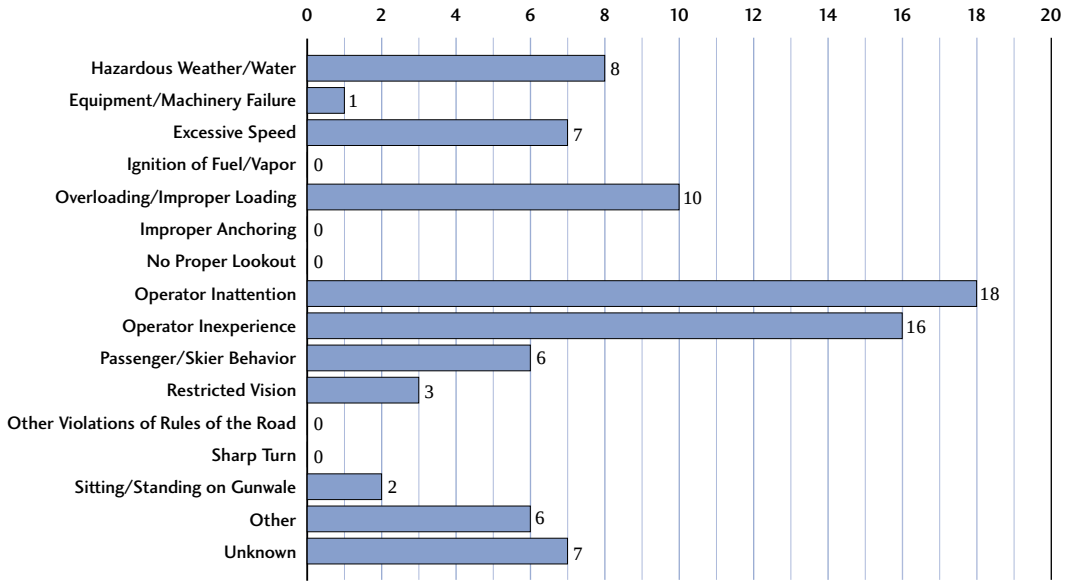
Some accidents are represented by more than one accident type, which accounts for the accident types exceeding the number of fatalities. An example of such an accident is when a vessel floods and then capsizes. Such an accident would be represented in both the "Flooding/Swamping" category and the "Falls Overboard" category since both of these occurrences were significant components of the accident.

did you know?

Capsizing and falls overboard were the most common types of fatal boating accidents.

Chart 25 – Fatalities by Cause of Accident

Total Causes = 84
Total Fatalities = 51



Many PWC-related accidents had more than one cause, which is reflected in this chart. The "Other" category includes causes that do not fit into any of the categories listed above.

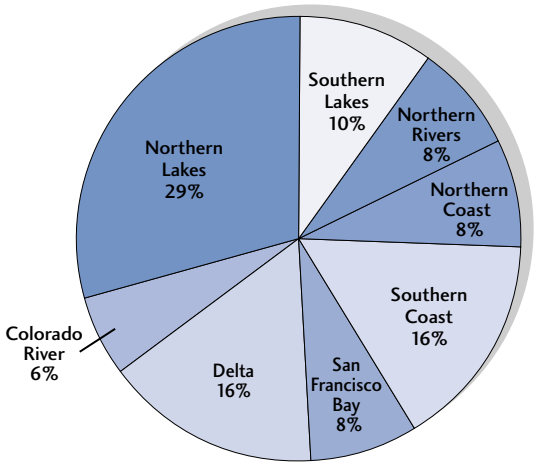
did you know?

Operator inattention played a role in 35% of all fatalities, followed by operator inexperience (31%) overloading/improper loading (20%).

Chart 26 – Fatalities by Accident Location

Total Fatalities = 51

Number of Fatalities	
Northern Lakes	15
Southern Lakes	5
Northern Rivers	4
Southern Rivers	0
Northern Coast	4
Southern Coast	8
San Francisco Bay	4
Delta	8
Colorado River	3
Total	51

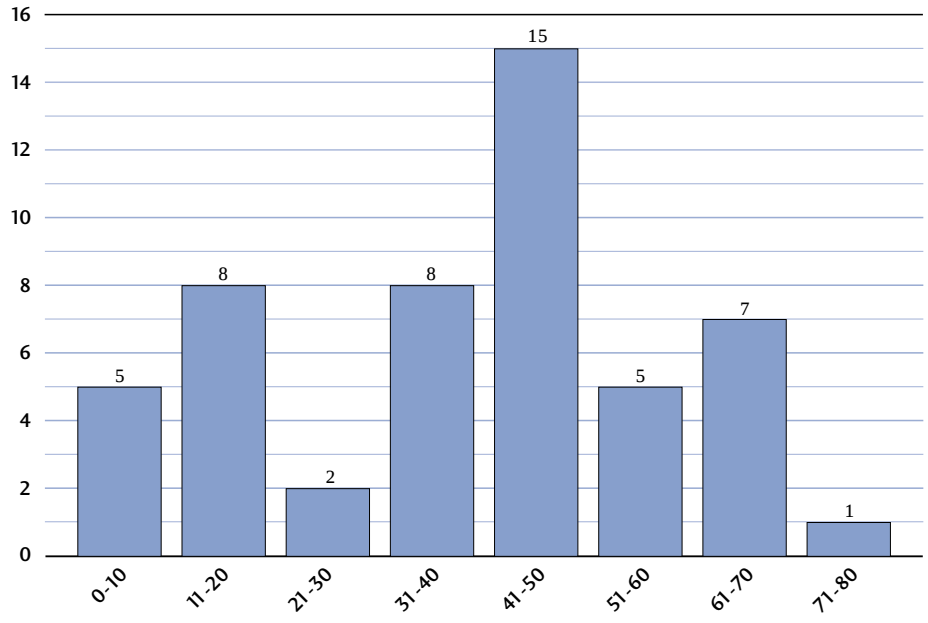


did you know

The largest number of fatalities occurred on lakes, followed by oceans/bays.

Chart 27 – Fatalities by Age of Victim

Total Fatalities = 51

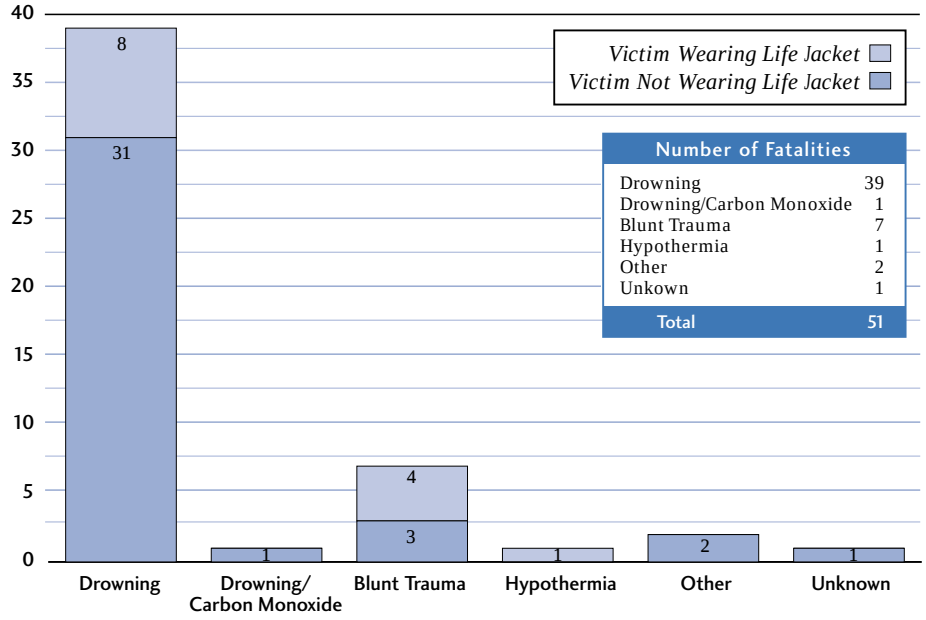


did you know

The 41-50 age group registered the largest number of boating fatalities.

Chart 28 – Fatalities by Cause of Death

Total Fatalities = 51



did you know?

Drowning was the leading cause of death in fatal accidents. The chart shows the effectiveness of life jacket usage. Of the victims who drowned, 80% were not wearing a life jacket.

CALIFORNIA BOATING ACCIDENT REPORT

CALIFORNIA DEPARTMENT OF BOATING AND WATERWAYS

The operator of every recreational vessel is required by Section 656 of the Harbors and Navigation Code to file a written report whenever a boating accident occurs which results in death, disappearance, injury that requires medical attention beyond first aid, total property damage in excess of $500, or complete loss of a vessel. Reports must be submitted within 48 hours in case of death occurring within 24 hours of an accident, disappearance, or injury beyond first aid. All other reports must be submitted within 10 days of the accident. Reports are to be submitted to the California Department of Boating and Waterways at 2000 Evergreen Street, Suite 100, Sacramento, California 95815-3888, (916) 263-8189. Failure to submit this report as required is a misdemeanor and is punishable by a fine not to exceed $1000 or imprisonment not to exceed 6 months or both.

DATE OF ACCIDENT (M/D/Y)	TIME OF ACCIDENT	COUNTY	BODY OF WATER	LOCATION ON WATER
| |	☐ AM ☐ PM			

# INJURED	# DEAD	TOTAL $$	LAW ENFORCEMENT ON ACCIDENT SCENE?	AGENCY NAME
			☐ YES ☐ NO	

WEATHER (CHECK ALL THAT APPLY):
☐ CLEAR ☐ RAIN
☐ CLOUDY ☐ SNOW
☐ FOG ☐ HAZY

WATER CONDITIONS
☐ CALM (waves less than 6")
☐ CHOPPY (waves 6"-2')
☐ ROUGH (waves 2'-6')
☐ VERY ROUGH (waves >6')

WIND CONDITIONS
☐ NONE
☐ LIGHT (0-6 mph)
☐ MODERATE (7-14 mph)
☐ STRONG (15-25 mph)
☐ STORM (over 25 mph)

TEMPERATURE
WATER AIR

VISIBILITY
☐ GOOD
☐ FAIR
☐ POOR

STRONG CURRENT
☐ YES ☐ NO

TYPE OF ACCIDENT (CHECK ALL THAT APPLY):
☐ CAPSIZING
☐ COLLISION WITH VESSEL
☐ COLLISION WITH FIXED OBJECT
☐ COLLISION WITH FLOATING OBJECT
☐ FALL OVERBOARD
☐ FALL IN BOAT
☐ FIRE / EXPLOSION (fuel)
☐ FIRE / EXPLOSION (other than fuel)
☐ FLOODING / SWAMPING
☐ SINKING
☐ STRUCK BY BOAT / PROPELLER
☐ SKIER MISHAP
☐ OTHER ______

CAUSE OF ACCIDENT (CHECK ALL THAT APPLY):
☐ IMPROPER LOOKOUT / INATTENTION
☐ OPERATOR INEXPERIENCE
☐ EXCESSIVE SPEED
☐ MACHINERY FAILURE
☐ EQUIPMENT FAILURE
☐ IMPROPER LOADING
☐ OVERLOADING
☐ HAZARDOUS WEATHER / WATER
☐ RESTRICTED VISION
☐ IGNITION OF SPILLED FUEL / VAPOR
☐ IMPROPER ANCHORING
☐ ALCOHOL USE
☐ FAILURE TO VENT
☐ OTHER ______

DESCRIBE WHAT HAPPENED AND WHAT YOU COULD HAVE DONE TO PREVENT THIS ACCIDENT

(Explain the cause of death or injury, medical treatment, etc. Use sketch if helpful. If needed, continue description on additional paper.)

VICTIM OR WITNESS INFORMATION

VICTIM / WITNESS NAME & ADDRESS	VICTIM / WITNESS STATUS	RIDING IN VESSEL #	AGE	INJURY DESCRIPTION	CAUSE OF DEATH	COULD VICTIM SWIM?	LIFE JACKET WORN?
	☐ INJURED ☐ DEAD ☐ WITNESS ONLY				☐ DROWNING ☐ TRAUMA ☐ OTHER	☐ YES ☐ NO	☐ YES ☐ NO
	☐ INJURED ☐ DEAD ☐ WITNESS ONLY				☐ DROWNING ☐ TRAUMA ☐ OTHER	☐ YES ☐ NO	☐ YES ☐ NO
	☐ INJURED ☐ DEAD ☐ WITNESS ONLY				☐ DROWNING ☐ TRAUMA ☐ OTHER	☐ YES ☐ NO	☐ YES ☐ NO
	☐ INJURED ☐ DEAD ☐ WITNESS ONLY				☐ DROWNING ☐ TRAUMA ☐ OTHER	☐ YES ☐ NO	☐ YES ☐ NO

THIS CONFIDENTIAL REPORT IS USED IN RESEARCH FOR THE PREVENTION OF ACCIDENTS AND A COPY IS FORWARDED TO THE UNITED STATES COAST GUARD

CALIFORNIA BOATING ACCIDENT REPORT

CALIFORNIA DEPARTMENT OF BOATING AND WATERWAYS

INFORMATION: OPERATOR #1

OPERATOR NAME AND ADDRESS

AGE

IS OWNER DIFFERENT THAN OPERATOR? ☐ YES ☐ NO

OWNER NAME AND ADDRESS

OPERATOR EXPERIENCE

- ☐ UNDER 10 HOURS
- ☐ 10 TO 100 HOURS
- ☐ OVER 100 HOURS

OPERATOR EDUCATION

- ☐ AMERICAN RED CROSS
- ☐ USCG AUXILIARY
- ☐ US POWER SQUADRON
- ☐ STATE COURSE
- ☐ INFORMAL
- ☐ NONE

INFORMATION: VESSEL #1 *(YOUR VESSEL)*

THIS VESSEL ONLY	# INJURED	# DEAD	ESTIMATED DAMAGE	RENTED BOAT ☐ YES ☐ NO	# OF PERSONS ON BOARD	# OF PERSONS TOWED

BOAT NUMBER (CF OR DOC #)	MFR. HULL ID #	BOAT NAME	LENGTH

BOAT MANUFACTURER	BOAT MODEL	YEAR BUILT	TYPE OF FUEL	# OF ENGINES	HORSEPOWER

ACTIVITY	FIRE EXTINGUISHER ON BOARD	FIRE EXTINGUISHER USED	LIFE JACKETS ON BOARD	LIFE JACKETS ACCESSIBLE	LIFE JACKETS WORN
☐ RECREATIONAL ☐ COMMERCIAL ☐ OTHER _____	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO

TYPE OF BOAT

- ☐ OPEN MOTORBOAT
- ☐ CABIN MOTORBOAT
- ☐ PERSONAL WATERCRAFT
- ☐ HOUSEBOAT
- ☐ SAILBOAT (aux. engine)
- ☐ SAILBOAT (sail only)
- ☐ CANOE / KAYAK
- ☐ RAFT
- ☐ ROWBOAT
- ☐ OTHER (specify) _____

HULL MATERIAL

- ☐ WOOD
- ☐ ALUMINUM
- ☐ FIBERGLASS
- ☐ PLASTIC
- ☐ RUBBER / VINYL
- ☐ OTHER (specify) _____

PROPULSION

- ☐ OUTBOARD
- ☐ INBOARD
- ☐ INBOARD / OUTBOARD
- ☐ JET
- ☐ SAIL ONLY
- ☐ PADDLE / OARS
- ☐ OTHER (specify) _____

OPERATION AT TIME OF ACCIDENT

- ☐ CRUISING
- ☐ CHANGING DIRECTION
- ☐ CHANGING SPEED
- ☐ TOWING SKIER / TUBER
- ☐ TOWING SKIER- SKIER DOWN
- ☐ TOWING ANOTHER VESSEL
- ☐ BEING TOWED BY ANOTHER VESSEL
- ☐ DRIFTING
- ☐ AT ANCHOR
- ☐ TIED TO DOCK
- ☐ LAUNCHING
- ☐ DOCKING / LEAVING DOCK
- ☐ SAILING
- ☐ OTHER (specify) _____

SPEED _____MPH

INFORMATION: OPERATOR #2

OPERATOR NAME AND ADDRESS

AGE

IS OWNER DIFFERENT THAN OPERATOR? ☐ YES ☐ NO

OWNER NAME AND ADDRESS

OPERATOR EXPERIENCE

- ☐ UNDER 10 HOURS
- ☐ 10 TO 100 HOURS
- ☐ OVER 100 HOURS

OPERATOR EDUCATION

- ☐ AMERICAN RED CROSS
- ☐ USCG AUXILIARY
- ☐ US POWER SQUADRON
- ☐ STATE COURSE
- ☐ INFORMAL
- ☐ NONE

INFORMATION: VESSEL #2 *(OTHER VESSEL INVOLVED)*

THIS VESSEL ONLY	# INJURED	# DEAD	ESTIMATED DAMAGE $$	RENTED BOAT ☐ YES ☐ NO	# OF PERSONS ON BOARD	# OF PERSONS TOWED

BOAT NUMBER (CF OR DOC #)	MFR. HULL ID#	BOAT NAME	LENGTH

BOAT MANUFACTURER	BOAT MODEL	YEAR BUILT	TYPE OF FUEL	# OF ENGINES	HORSEPOWER

ACTIVITY	FIRE EXTINGUISHER ON BOARD	FIRE EXTINGUISHER USED	LIFE JACKETS ON BOARD	LIFE JACKETS ACCESSIBLE	LIFE JACKETS WORN
☐ RECREATIONAL ☐ COMMERCIAL ☐ OTHER _____	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO

TYPE OF BOAT

- ☐ OPEN MOTORBOAT
- ☐ CABIN MOTORBOAT
- ☐ PERSONAL WATERCRAFT
- ☐ HOUSEBOAT
- ☐ SAILBOAT (aux. engine)
- ☐ SAILBOAT (sail only)
- ☐ CANOE / KAYAK
- ☐ RAFT
- ☐ ROWBOAT
- ☐ OTHER (specify) _____

HULL MATERIAL

- ☐ WOOD
- ☐ ALUMINUM
- ☐ FIBERGLASS
- ☐ PLASTIC
- ☐ RUBBER / VINYL
- ☐ OTHER (specify) _____

PROPULSION

- ☐ OUTBOARD
- ☐ INBOARD
- ☐ INBOARD / OUTBOARD
- ☐ JET
- ☐ SAIL ONLY
- ☐ PADDLE / OARS
- ☐ OTHER (specify) _____

OPERATION AT TIME OF ACCIDENT

- ☐ CRUISING
- ☐ CHANGING DIRECTION
- ☐ CHANGING SPEED
- ☐ TOWING SKIER / TUBER
- ☐ TOWING SKIER- SKIER DOWN
- ☐ TOWING ANOTHER VESSEL
- ☐ BEING TOWED BY ANOTHER VESSEL
- ☐ DRIFTING
- ☐ AT ANCHOR
- ☐ TIED TO DOCK
- ☐ LAUNCHING
- ☐ DOCKING / LEAVING DOCK
- ☐ SAILING
- ☐ OTHER (specify) _____

SPEED _____MPH

NAME OF PERSON COMPLETING THE REPORT _____

SIGNATURE OF PERSON COMPLETING THE REPORT _____

QUALIFICATION OF PERSON COMPLETING REPORT

☐ OPERATOR ☐ OWNER ☐ OTHER (specify) _____

DBW FORM BAR-1 (1/00)

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